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THE
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Rail Road News.

Georgia Railroad.

At a recent meeting of the Stockholders of this company, the reports from the several officers to the Convention, show it to be in a flourishing condition. The gross receipts for the Board and Bank are put down at $676,-966 10, while the expenses, taxes, interest, &c., were only $291,299 91 leaving the net income $385,666 19. From the profits, two dividends of $3,50 per share have been declared, being 7 per cent. on the capital stock, and leaving applicable to reserved fund $105,666 19. The increase in receipts for passengers, freight and mails is $44,792 42, while the increase in expenses is, $32,499 09—leaving a net increase in profits of $12,392 34.

Concord and Claremont Railroad.

This road will be finished to Bradford, 27 miles from Concord, some time in June. The whole amount of stock issued and contracted for, is $260,000; the total cost of the road has been $398,075, and it is recommended that the capital stock be limited to $400,000, which will finish and equip the road to Bradford. The debt of the company will consequently be nearly $140,000, which may be reduced to $100,-000 by sale of property and collection of dues. The net income from the running of the road eight months to Contoocokville, and seven months to Warner, is $12,035,—more than six per cent. on what will be the cost of the road to Warner.

The Miseries of Being a Large Landholder.

The Pennsylvania & Ohio Railroad has had much trouble with the poor landholders on the route who own a few thousand acres. One who owns enough to make him "almost miserable," has, the Pittsburg Dispatch says, put in no less than eleven specifications of damages resulting from the location of the road through one fragment of his property, which the road will very probably *enchance* in value of 100 per cent. The reason given is a forcible one. He said it would probably increase its value so much that the taxes would become enormous, and he should be compelled to sell his homestead!

We perceive by the Rochester Advertiser, that the consolidation of the Rochester, Auburn and Syracuse Railroad, is deferred for the present, on account of the Auburn and Syracuse Railroad not being able to comply with the terms of agreement.

The New York and Hudson Railroad is doing a fine business.

The Belvidere and Deleware railroad, running from Trenton, N. J. to Belvidere is almost ready for the rails.

Petrified Rattlesnake.

A. Mr. Kittle of Beverly, Randolph Co., Virginia, while hunting a short time since found the body of a large rattlesnake in a state of complete petrification. It was found in the crevice of a rock, and the place where it lay had become as smooth as glass.

IMPROVED STEERING APPARATUS.

Figure 1.

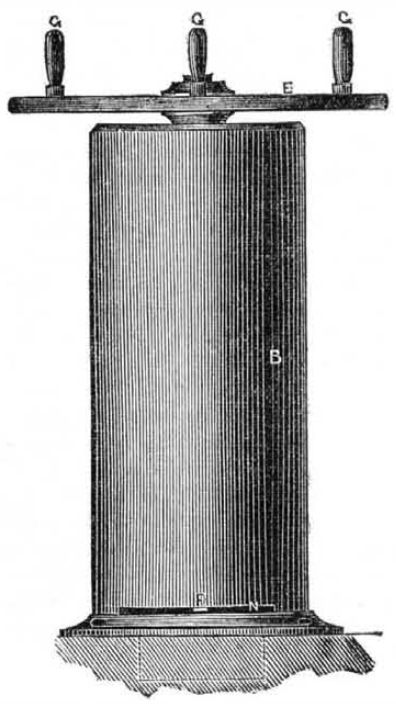
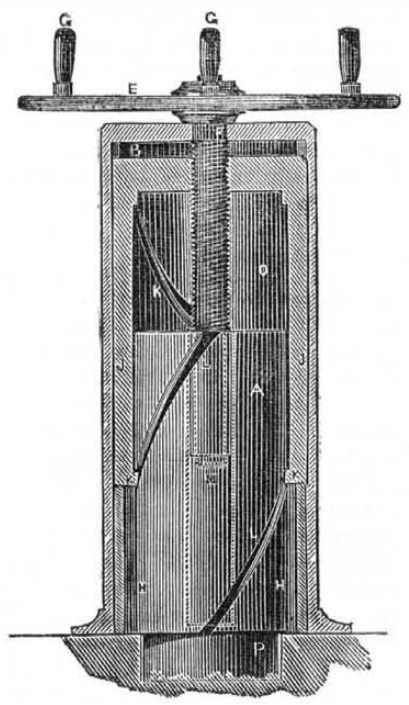


Figure 2.



This remarkably neat and compact steering apparatus, is the invention of Capt. Charles F. Brown, of Warren, Rhode Island, who has taken measures to secure a patent for the same.

Figure 1 is an elevation of the apparatus, and figure 2 is a vertical section. This invention we briefly noticed before, on page 284. The neatness of the apparatus is observable at a glance: it combines compactness with the great power of the screw and inclined plane. The outside is composed of a hollow pillar, B, fig. 1, bolted to the deck. E is the horizontal wheel, with its handles, G G. This wheel is secured on a strong screw rod, F, which forms its axis. It passes freely through the collar of the hollow pillar, and works into a thread collar in a hollow tube or metal cylinder, J J. This cylinder is made with two feathers, H H, on its outside, to slide in two vertical grooves in the inside of the pillar, B, to guide the cylinder, J J, steadily up and down, as it is made to slide thus when the screw is turned by the wheel. This cylinder, J J, has two spiral flanges, K K, extending on each side from top to bottom, on the interior, O. The rudder Post P, has a metal top, A, firmly secured to it, and made of a somewhat greater diameter than the post below. This head of the rudder post has two spiral grooves, L L, cut around it, into which the spiral flanges, K K, of the sliding cylinder fits. The head, A, of the rudder post has an interior hollow part, M, represented by the dotted lines, in which the screw-rod, F, turns, but does not touch. The screw acts only upon the thread of the collar of the sliding cylinder, J J, raising it and depressing it, as the wheel is turned, and when it is raising or falling, the flanges, K K, acting in the grooves, L L, of the head of the rudder post, turns it with great power to steer the vessel. On fig. 1 there is a small slit, N, at the bottom of the hollow pillar, in which is a pointer, F, attached to the rudder post, which turns so as to indicate the degrees through which the rudder has moved. A dial can be secured before it, with the degrees marked out on it. This is a very beautiful arrangement of itself. For compactness and neatness, we have seen no steering apparatus to equal this. It has been highly approved of by all nautical gentlemen who have seen it.

More information may be obtained by letters (*p. p.*) addressed to Capt. Brown, who is a gentleman of great mechanical ingenuity.

SCARLETT'S PATENT BUCKLE.

Figure 2.

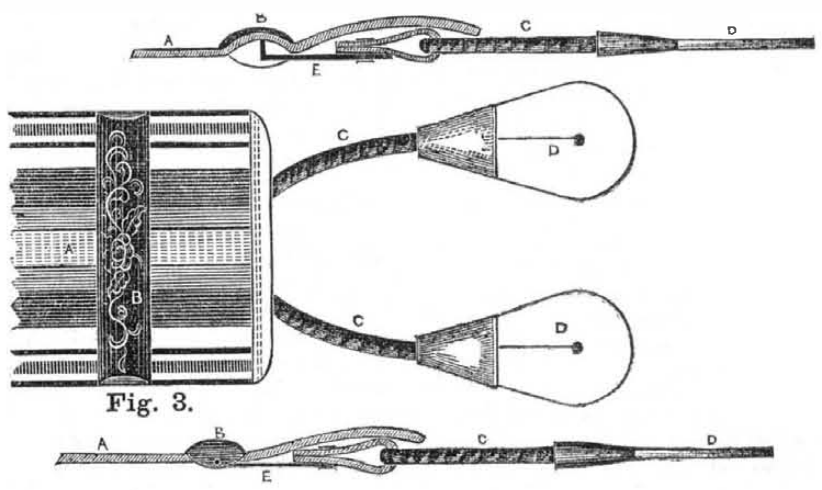


Fig. 3.

This is an improvement in Buckles, invented by Mr. William Scarlett, of Newark, N. J., and secured to him by patent on the 14th day of last month. Figure 1 is a front view of a portion of a suspender. Figure 2 is a vertical longitudinal section; figure 3 is an edge view thereof. The same letters refer to like parts. A is the web of the suspender; C C and D D are the eyelets and loop; B is a curved plate, and E is a bent lever, which form the buckle. The lever, E, has pivots projecting from each edge of its angle, and pass into holes in the ends of the curved plate, B, as represented in figure 2. When the lever, E, is drawn into the position represented in figures 2 and 3, the short leg thereof is of such a length that its extremity will press the web, A, against the under side of the curved plate, B, so as to grip and retain it firmly, thus preventing the buckle from slipping without the use of teeth, which are commonly employed for this purpose. It will readily be noticed that when the loop is drawn down the back part of the curved plate will be thrown upwards and partially downwards on the web, thus retaining it firmly in the buckle and the buckle on it.

These buckles are manufactured in large quantities by Messrs. Scarlett Dodd, & Co., 131 Market st., Newark, N. J., and are sold by their agents Messrs. Dodd & Wake man, manufacturers and importers of suspenders, No. 71 Liberty street, N. Y.

Useful Receipts.

To Make Good Bread.

Take an earthen vessel, larger at the top than the bottom, and in it put a pint of milk-warm water, 1½ lbs. of flour and ½ pint of good malt yeast; mix these well together and set it away (in winter it should be in a warm place) until it rises and falls again, which will be in from three to five hours. It may be set at night if wanted in the morning. Then put two large tablespoons full of salt into two quarts of water, and mix it well with the above rising. Then put in nine pounds of flour and work your dough well, then set it by until it becomes light. Then make it out in loaves of which it will make four. As some flour is "dry" and other "runny," the above quantity will be a guide. The person making bread will observe that runny, or new flour, will require one fourth more salt, than old or dry flour. The water also should be tempered according to the weather. In Spring and Fall it should only be milk warm. In hot weather cold, and in winter warm.

To Pickle Fish.

Take bass, herring, shad, or any freshly caught fish; wash, scale, and wipe them dry, before you cut them. After being cut, no water must touch them, if you wish them to keep any time. They must be scraped and wiped with a dry cloth inside and out, cut in slices 2 or 3 inches thick and put in a stone jar, with a little salt, horse radish, cloves, whole pepper, mace or whatever spice you please. When the jar is well filled, pour in good vinegar, put on cover, and lute it tight with dough, place it in your oven with your white bread, and leave it for some hours. Then place it in the cellar for a couple of months, and no bones can be found. This will keep all summer.

To Make a Good Razor Strop.

Make the strop of willow wood, and let it be perfectly smooth on every side, and then put black lead on two of its sides, and on the other two put a powder made by rubbing the faces of two Scotch Grey Stones together.—This makes an excellent razor strop. It is well to have two of the sides of the strop a little rounded, for if we look along the edge of a number of razors, it is scarcely possible to find one which has a truly flat and straight edge.

It is not wise to be guided by fancy instead of fact, yet where is the man who does not often trust to his imagination instead of reason and experience.

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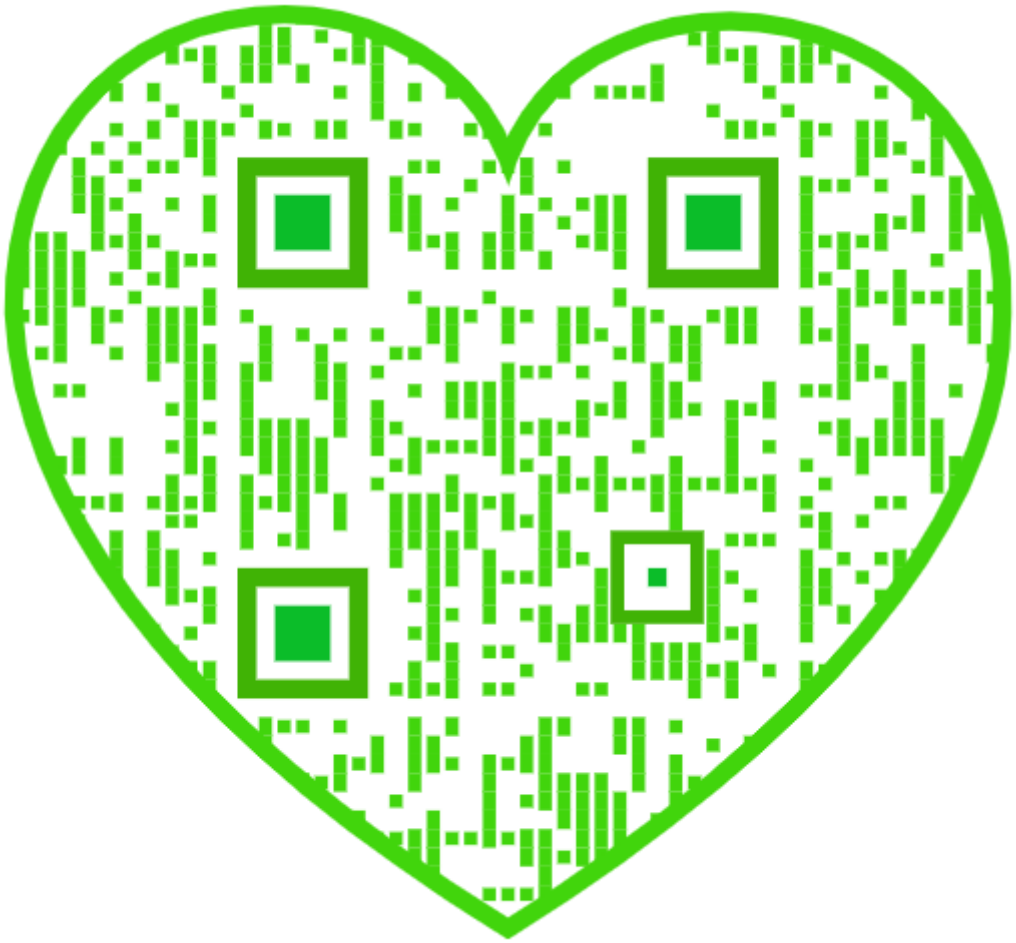

Miscellaneous.

Improvements in the Manufacture of Sugar--Patented in France.

Process of M. Melsens.—M. Melsens employs a solution of bi-sulphite of lime, of 10° Beaume; the beet-root pulp is sprinkled over with this solution; 2½ parts of bi-sulphite are sufficient for 100 parts of beet-root The saccharine solution marking 7° or 8° Beaume when it comes from the press, remains almost colourless when exposed to the air, and does not ferment. It is then heated, without any further addition, up to 100°C, and as soon as it boils, it is run off and filtered; the limpid juice is then evaporated to 30° Beaume,—filtered a second time, concentrated to the required degree, and then set aside to crystallize.

M. Chevreul states in reference to the above process, that the employment of sulphites cannot be claimed as a new discovery. M. Lacoste, in 1809, employed sulphurous acid; and M. Proust, in 1810, the sulphite of lime. M. de Bournissac, a prisoner in the fortress of Vincennes, was set at liberty in consideration of his work on the employment of these substances in the manufacture of sugar from the grape; and MM. Poulet of Marseilles, Serullas, Dejardin, and Fournier, junr, of Nismes, have published accounts of their researches on this subject.

Process of M. Dubrunfaut.—M. Dubrunfaut employs hydrate of baryta, which separates the sugar from the principal part of the salts and foreign matters contained in the pulp; the insoluble saccharate of baryta is then treated with sulphuric acid, and a perfectly pure sugar is obtained.

Bogardus's Horse Power.

Any machinist who has facilities for making light castings, has now an excellent opportunity of engaging in a permanent and profitable business, and will see the offer made for that purpose by referring to our advertising columns. We allude to the advertisement of Geo. Vail, who is desirous to have others engage in the manufacture of "Bogardus's Horse Power" machines—machines which are well known throughout the United States, and the reputation of which is beyond dispute. The inventor, Mr. Bogardus, is one of the most ingenious men born in our country—one who is an honor to it. Whatever comes from his plastic mind is of no ordinary character. This "Horse Power" has taken a number of premiums at different exhibitions; and the manufacture of such machines, we should judge, must be both extensive and profitable—they at least have only to be known to be appreciated.

Duties Paid by Cunard Steamers.

The amount of duties paid by the three British (Cunard) steamers that arrived at this port during the quater just closed, was $610,-969,25, averaging $203,656,42 each. The Navigation Laws came into operation on the 1st of January, 1850, since which time these steamers have brought over large quantities of French and other continental goods. It is safe to say that the value of each of these cargoes was in the neighborhood of a million of dollars.—[Boston Cour.

Patent Case.

On the 31st ult., before Judge Kane, U. S. Circuit, Philadelphia, after a long trial a verdict was given for Plaintiff, St. John and others, against Meade and others, for the infringement of a patent for the manufacture of hat-bodies.

Parker's Water Wheel.

The Committee of Patents, in Congress, have reported favorably to a renewal of Parker's patent for improvements on water wheels —that is, the patent to be extended for seven years more.

The subscriber at Marcellus, N. Y., who sent us $2 for "another year's subscription to the Sci. Am." will oblige us by furnishing his name, which he failed to sign to his letter of the 1st inst.

Those who have impure gas can make it perfectly pure by using acetate of lead along with water to purify it.

A Fly Traveller.

The Rochester Democrat mentioning the receipt of the Polynesian, Sandwich Island paper, up to the 24th of March, says:

"Upon removing the wrapper from the paper dated March 2, and unfolding it, a beautiful fly, with wings as white and glossy as the purest satin, and a body transparently white, arose from the sheet in which it had been so long imprisoned, and had made so extensive a journey, and with a musical buzzing, flew through our sanctum, finally returning to the editor's table and settling near where the gas light was burning.

We welcomed the beautiful stranger very heartily to our clime, but feared that its delicate habits would not be suited to an atmosphere as cold as ours. Our fears were, however, soon ended by a catastrophe. A friend of ours who was with us at the time—one curious in things pertaining to natural science—was very desirous to possess this tiny creature, and in his ardent endeavor to capture it, had the misfortune so to bruise and injure it, that it soon died; thus finding that it had crossed wide seas and journied far, to meet its death among a savage people."

An Extraordinary Barometer.

All the barometers yet invented require correction when an observation is made, but the remote glen of Abrichan in Scotland, says the "Inverness Courier," can boast on one which can be more relied on than even the Torrichellian experiment itself. It consists simply of a stone inside the wall of the house occupied by the honest tenant of Achacuilian, which, three days beforehand, prognosticates wet weather with mathematical precision. The sign is, that it oozes out drops of water. The natives hold that this wonderful stone has been of incalculable service to them. In harvest, when the crop is cut down, but still unsecured, every eye in the glen is turned towards "Tomasan Achacuilian," and whenever he begins to gather in the stocks there is a simultaneous movement throughout the glen. Indeed, it is not unusual to see such a scene of hurry and bustle at this place in the finest day in harvest, and when no ordinary philosopher could say there was a cloud of rain in the sky. Usage has transferred the name barometer from the stone to the owner, so that, in that and the surrounding district, the worty tenant of Achacuilian is familiarly saluted as the "Abriachan Baromter."

Iron.

Very large quantities of British iron continue to be imported. Our iron manufacturing business is now in a miserable state. In Pennsylvania it is in ruins. The British iron manufacturers are nearly as bad. There has been an overproduction in the poorer qualities of iron. Let our manufacturers go to work and make the fine qualities.

The Sultan of Turkey having presented to Mr. Morse, as the inventor of the Magnetic Telegraph, and to Mr. Colt, as the celebrated inventor of the revolving fire-arms, very valuable presents, they were obliged to pay a very heavy United States customs duty upon them. Mr. Rusk, of Texas, has introduced a bill in the Senate, to provide for the re-payment of the amounts charged and received by this Government.

The United States and Great Britain have concluded a treaty to construct a canal through the Isthmus of Darien, to unite the Atlantic and Pacific Oceans. The two governments have made a compact to take charge of Central America. The treaty is honorable to both governments.

The currency of the world is stated by Thompson, in his Reporter, to be nearly as follows:—Bank cuarency, $650,000,000; specie in circulation, $655,000,000; specie in banks, $445,000,000.

Whitney, the American delineator of American oratory has been giving entertainments in Glasgow. The American Consul at that place was very attentive to him, and his representations have been lauded by the public and press, especially the speeches of Hayne and Webster.

Whitewash Receipt.

The usual inundation of whitewash receipts is beginning to pour through the press; one in the last number of the Sci. Am., with a little variation, a practical painter and colorman's experience of twenty-five years, has taught me is the best for this climate. Here is my receipt:—Good fresh burnt lime, water enough to slack it, if the lime is fit for white wash, it is immaterial whether the water is hot or cold. Experience (a good teacher) tells me that more of the material is lost by dry winds than wet weather; salt will absorb moisture: therefore I use it. Sulphate zinc, I know is a drier for oil paint, but is it for lime wash? and if it is, is that a desirable quality? I put about four quarts of salt in the water I thin my wash with, to every bushel of lime. Milk renders this wash more desirable, but I do not think it economy to give a fip a quart for it, for that purpose. To color the above wash, use, for cream colour, yellow ochre; for pink or peach-blow, Venetian red—enough of each to suit the eye; both together will make a buff. Keep Prussian blue, chrome yellow, sienna, &c., away from lime washes. I have tried some less than a hundred receipts for washes; for this part of the country they are most of them useless, and some of them expensive; one in particular I would caution against, said to be the wash used for the President's house: I have tried it faithfully, it may do at Washington, on Presidents' houses, but it don't answer well here on a hog pen, and it is for such buildings that a cheap, handy wash is wanted, one that the farmer or mechanic, or their daughters, if *well* educated, can use on the rough fences and outbuildings. The great secret of making such things look well, is to do them over often and cover them thoroughly. N. B. Wash out the brush clean before putting it away, and soak it in water before using.

H. L. Emons, Painter and Colorman.

Growth of Western Villages.

The Milwaukie Sentinel contains a notice of the new town of Appleton, which has sprung up as if by magic during the last year, in the northern part of that State. It is situated on Fox river, about thirty miles south of Green Bay, and but a short distance from the point where the river discharges itself into Lake Winnebago. The banks of the river are some eighty feet high, and the stream near eight hundred feet in width, affording a water-power equal to that of the Genesee, at Rochester, and which the proprieters intend to turn to the best account. The Sentinel says the town "was named after Messrs. William and Samuel Appleton, two wealthy and enterprising citizens of Boston, and is the site of the Lawrence university, towards which Mr. Amos A. Lawrence, son-in-law of Mr. Wm. Appleton, contributed the handsome sum of $10,000." Last year, in February, the "shanty" of Mr. Smith, the agent, was the only tenement in the town. Now, the Sentinel says, "it boasts of upwards of one hundred buildings; a post office, enjoying a daily mail connexion with Milwaukie; one of the best hotels in northern Wisconsin; three saw-mills; an academic building, the germ of the future university, and a population of five hundred, or more, industrious, frugal, temperate Yankees. During the coming season the work of improving the navigation of the Fox river in the vicinity of Appleton is to be prosecuted vigorously. Four locks are to be constructed, two just above and two below the site of the town. This and other pursuits of industry can hardly fail to give fresh start to the town's growth."

Sugar Crop of Louisiana.

It appears there are in the State, 1536 sugar plantations, of which there are 805 provided with steam power, and 721 worked by horse power. The produce of these plantations during the last season, amounted to 247,923,269,-769,000, pounds. This includes an estimated weight of about 12,590,000 lbs, of wet sugar, which is taken from the bottom of the molasses cisterns. The molasses is estimated at 45 gallons to each 1000 lbs, of sugar, or in the aggregate about 12,000,000 of gallons. On the above 1536 plantations, there are only 1445 which are producing ones, and 81 which have been recently opened, having as yet made no crops. Of these latter, 62 will produce crops to a limited extent next season, and 19 not until 1851-2.

Since 1846 there have been erected in the State 355 engines and sugar mills, most of them to replace old ones, or those previously worked by horse power. Of these engines and mills, the founderies have furnished 281, Pittsburgh 37, Richmond 7, Baltimore 4, Louisville 3, New Orleans 19, Algiers, La. 2, Gretna, La. 6, and the Novelty Works, New York, 5. We presume, that these engines and mils, on an average, cost at least $5000, and with the sugar kettles, &c., would make nearly two millions of dollars, which Louisiana has paid to her sister States for machinery alone, during the above period.

Some of the plantations have refiners, and others make their entire crop in white clarified sugar. Many of these latter have very costly apparatus and machinery, for which 20,000 to 40, 50, and even $70,000 have been expended, which adds greatly to the above estimate of the amount paid by the planters of the State to citizens of other States, for that kind of supplies.

The estimated loss to the sugar crop last year by the different crevasses, is 18,000 hhds.

From the best information obtained from Texas, there are not less than 35 sugar plantations there, that will export about 10,000 hogsheads of the present crop, of 1000 pounds each, and that the export from there next year will probably be double that quantity.

Works on Science and Art.

Dictonary of Mechanics, Engine Work and Engineering.—Part 11 of this work is just issued. It contains the Details of Engines, commenced in the last number, and presents a number of rules used to calculate the proportions of some engines. Oliver Byrne, Editor; Appleton & Co. publishers.

The Painter, Gilder, and Varnisher's Companion.—This is a neat and useful little volume, published by H. Baird, Philadelphia, and by John S. Taylor, No. 143 Nassau st., New York, who will supply orders. The spirit of the work, is that of a hand book to the artisan. It is instructive and written in a familiar style and is full of good receipts and judicious suggestions. The article "Cleanliness in Working," on another page is taken from its columns.

The Dyer and Color Maker's Companion.—This is a good little book by the same publishers of the Painter, Gilder, &c. It is a book of receipts for the Calico Color Maker, to be a pocket companion to him in his various manipulations. It is not for the skein or woolen dyer, but it embraces receipts for cotton, linen, silk and muslin de laine, and to the *practical* man it will be a valuable *note book*.

What have we here? No. 33 of the "Scientific American," Lizzie Leigh, and Frederika Bremer, &c., &c.—all from the well filled shelves of our enterprising friend Fuller.

"The Scientific American"!—twenty columns closely packed type, with eight wood cuts of superior accuracy and finish, for something less than twopence farthing curreney!

Bad Books and trashy Periodicals, like ardent spirits, furnish neither aliment nor medicine—but the Scientific American is just the opposite of a trashy periodical; its articles, original and selected, are generally really valuable, and occasionally seasoned wiih an agreeable spice of racy humor—and will be found by intelligent Mechanics, bent on advancement in the "cunning of their craft," a source whence to draw weekly streams of useful knowledge. Our astonishment is, considering a deserved popularity elsewhere, that its circulation in Nova Scotia is not wider and more general.

We are happy to inform our friend of the "Halifax Sun," that the circulation of the Scientific American is rapidly advancing in Nova Scotia, through Mr. Fuller's efficient management, and we are much obliged to the Editor for the manner in which he has placed our journal before the Nova Scotia public.

Strawberries are plenty in the Cincinnati market.

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Philosophy of Mechanics.

Being an answer to a series of articles published in the Scientific American, commencing on page 67, termed "Important Discovery that may lead to improvements of great value."

No. 2.

In the second article of the author, to which we refer, page 76, Sci. Am., he endeavors to prove that circular motion must have been a mystery to philosophers, and says that "if moving bodies endeavor after a short line, because the shortest, it implies intelligence in those moving bodies." This is not more correct than to say matter is intelligent because it prefers to combine chemically in *definite proportions*—that the atmosphere is imbued with intelligence because it is composed of 79 parts of nitrogen and 21 oxygen, will form *air*, and no other combination of parts. He says that inanimate matter "does not prefer to move in straight lines—rectilinear motion." And how does he attempt to prove his assertion? Why by saying, if this was so, "how is it that the electric fluid from a battery prefers to pass to the negative pole along all the coils and windings of the telegraph wire, instead of passing to the return wire on the next pole, a few feet off, the shortest road." No just philosopher would have taken an imponderable body to disprove an axiom in the science of ponderable bodies. He might just as well have asked how it is that the fluid passed from the positive pole on the pole at all. Why did it not jump by the shortest road at once through the plates of the battery to the negative pole? But the electric fluid always takes the shortest road, although it prefers to travel through all the coils and windings of the wire, to travel on no road at all. It is as impossible for the electric fluid to travel outside of a well covered wire, as it is for water to take the shortest road to its destination when passing through a a winding tube. In his second article, he gives us the name of his new discovery, and calls it "inertia." In order not to lose sight of what it is, let us state it again:—*It is "the quality of matter*, by which it resists motion when at rest, and resists rest when in motion." It is a great wonder that he did not see intelligence in this quality of matter. How this quality of matter explains circular motion, he leaves us profoundly in the dark, although he tosses the "law of gravity" from the point of his pen as if the great Newton was an ignoramus. In my last I stated that Euler knew all about this "important discovery" about a century ago, and so did Newton, but both of these great men, as well as the author of the said articles, have given a wrong definition of inertia. Newton called it the force of inactivity *vis inertia*—and so did Euler, but these philosophers, with all their learning, never could see how this quality of matter, like the author in question, was "the cause of breaking the bow lines of canal boats, bursting grindstones, carrying balls to the clouds, impelling the woodman's axe and continually ballancing the weight of this globe and countless other worlds." How his "new discovery—inertia—this new rule of his" can do all this, after stating that it is just a *quality of matter that resists a change*, puzzles us to understand,—it is a direct contradiction of his theory and assertion. Although "Inertia," is a quality of matter which lies at the root of the science of moving bodies called "Mechanics" I know of no *term* that is so little understood generally, and it is always employed by every novice, as his thunder and lightning to astonish others. I do not say that the author of the articles in question does this, he writes with too much sincerity for that, but where he has gone wrong, is in confounding *force* with *inertia*, and jumbling the two definitions together: "Inertia" is merely a name for the passive state of matter, and both Newton and Euler, and the author of the said articles should not call it *resistance* to a change of state, for it philosophically implies a perfect indifference to rest or motion—the absence of all resistance, and the absence of all power to move itself. "Inertia" is a term which should not be used as expressive of any force, for it cannot produce a single new effect. When the word "inertia" is used philosophically, in mechanics, it is just equivalent to saying "matter is incapable of spontaneous change." When we see a mass of matter undergo a change, we never look for the cause of that change in the body itself. In the science of mechanics "every cause which tends to move a body, or to stop it when in motion, or to change the direction or its motion, is called a *force* or *power*," not "inertia." It is force which impels the woodman's axe, drives the water wheel, the steam engine, breaks the bow line of the canal boat, sends cannon balls to their destination, and it is force which wheeled the planets in their orbits—

"Forever singing as they shine
The hand that made us is Divine"

When the Architect of the Universe created our world, his Almighty hand sent it rolling in space at the astonishing velocity of 1000 miles per minute, and he ordained that law of gravitation or attraction, which directs it continually in its curvilinear orbit around our great central luminary. None of all the great ancient philosophers; neither Copernicus, Galileo nor Kepler, could give a reason by any known mechanical principles, why the earth and our system of planets, revolved around the sun, until Newton made that grand discovery, which has given immortality to his name; and Newton, after all his profound calculas, is deemed to have been ignorant of the cause of circular motion and central forces, by the author of this "important discovery." It may be asked "why it is that the Creator has given our world a circular motion, when he has impressed matter with a quality of continuing forever in a straight line, when it receives an impulse?" Aye, it is easy to ask such a question, but it neither proves nor disproves any thing, and we might as reasonably ask why *He* created our world, or gave it any motion at all.

Again, he takes one of the most singular and puzzling views to prove that "inertia" moves the ball of a cannon. He says that "if we were to ask of the first dozen of men we meet, what power it is which carries a ball towards the sky, when thrown upwards, the majority, if not all, will tell us it is the force of the powder." What else could sober men say. But no, says our "discoverer," because "there is no connection between it and the powder, after it leaves the gun, it must be some power foreign to motion, because the ball resists a change to motion and from motion." This is certainly curious reasoning: can we conceive of any power apart from motion?—We cannot. The ball had no power before it had motion—it was as harmless as a tailor's thimble, but whenever it received impulse from the expansion of the powder, it acquired a power to deal death and destruction. If by the law of "inertia" a ball at rest cannot move of itself, and has no power when at rest, what then gives it motion, and what gives it power (force)? The ignited powder, certainly. If the powder had never been ignited, would the ball have moved? Certainly not. How absurd, then, to say, because the powder does not keep behind the ball, pushing it forward during its whole flight, that it is not the powder which propels it. It would be just as reasonable for a criminal to offer in defence, for having thrown his victim over a 100 foot precipice, that he was not guilty, because he pushed him only over the brink, and he fell to the bottom by the law of ''inertia."

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(To be Continued.)

The Mediterranean.

It is true that a distance of some 2000 miles separates the Straits of Gibraltar from the coasts of Syria; but not more than eight intervene between the south point of Sicily and the nothern point of Africa. By reference to this scale the eye will at once inform us of the small spaces which separate Rome from Malta, Constantinople from Athens, Antioch from Jerusalem. Palestine is not half the size of Scotland. We see how appropriate a place this Mediterranean was, for the lessons of early navigation, for testing the results of political experiments, for the first rudiments of sacred truth. This sea was the school of the human race. Here civilized man was detained, till he had learned his Latin and his Greek, and his religion too; his Old and New Testament lessons. I hope we are in no danger of letting this be forgotten. For here in the Mediterranean it was that the Greek and Latin languages, which have ever since been the educators of the highest human intellects, were formed and perfected. These waters carried the ship of Jonah from Joppa, and floated down from Tyre king Hiram's beams of cedar wood. By the sea-side on one of these islands St. Paul was wrecked. Across this sea Ignatius sailed to his martyrdom at Rome; at Hippo, on the Carthagenian shore, Augustine wrote those volumes which have instructed the Christian centuries. That which gives the school its dignity is, that it is a little world; which prepares for the great world; and that which is the dignity and glory of the Mediterranean, is not that it is a majestic expanse of water covering half the globe, but that it was ordained to be the school of the human race.

The Opium Trade.

A pamphlet has recently been issued in Boston, upon the opium trade of India and China, which contains some stratling and almost incredible statements.

The Boston Transcript, alluding to this subject inquires:

"How much does the reader suppose that China expends annually for the single article of opium? It will be found from the statistics presented, that she expends more money than the whole amount of the United States from all sources whatever, and a larger sum than one nation on the globe pays to another for a single raw material, with the exception of what Great Britain pays to this country for cotton.

Much as we deplore the extraordinary consumption of ardent spirits in this country, the calamity is nothing in enormity to this passion for opium. Neither is liquor, of the most deleterious sort, at all to be compared to this deadly stimulant. It holds its votaries in greater bondage than liquor can, and its effects upon the system are frightful in the extreme. Unlike liquor, it reduces the body to a skeleton; a hideous, ghastly spectre.

The Chinese use opium principally in the form of smoking. Their manner of smoking it differs materially from that of tabacco. The process consists in taking very large whiffs, thereby expanding their lungs to their utmost capacity, and communicating the influence of the drug to all the air cells, and at the same time retaining it there as long as possible.—Travellers in Persia, Turkey, and other countries, where the vice of opium-eating has existed a long time, do not represent the evils to be near as great as those of opium-smoking in China."

Notwithstanding the pernicious effects of this deadily drug, and the efforts made by the Chinese Government to prevent its introduction into their country, English sagacity has been able to frustrate all their plans of resistance.

Not only, says the excellent authority referred to, does opium produce the most dreadful physical, moral evils in China, but its introduction by Christains leads the intelligent Chinese to distrust and reject Christianity.—When the beauties and truths of the gospel are spoken of to them, they reply, "Why do Christians bring us opium in defiance of laws? The same ship that brings the missionary, also brings the most fatal obstacle to his success.''

Since the China war with England, the severe laws of the former against all who used or dealt in opium, have been made a dead letter on her statute books. The article is landed all along her coast, and smoked publicly in the chief cities.

In a lecture before the Boston Mercantile Library Association, Mr. William Sturgis recently stated, that in 1818, seven millions of dollars in specie were carried from the United States to China to pay for our importations from that country; but now most all our purchases are paid by bills of exchange on England, from the proceeds of the opium trade.

"The opium war," says an independent English writer, will stand out in history as the blackest stain on the character of Britain, being an outrage on justice, on public principle, and on the independent rights of nations." That the Chinese government has always been earnest and sincere in resisting the introduction of opium, Dr. Allen thinks there can be no doubt. For forty years its opposition to the evil has been steady and strong. It does not permit the cultivation of the poppy in China, although the soil and climate of the country are admirably adapted to the cultivation. The emperor, when urged to legalize the opium trade and establish duties on its importation, replied in these memorial words: "It is true I cannot prevent the introduction of the flowing poison, gainseeking and corrupt men will, for profit and sensuality, defeat my wishes; but nothing will induce me to derive a revenue from the vice and misery of my people."

[We copy the above as it has been published far and wide, to make a few comments upon it. Who is to blame for the use of opium in China, the Chinese or the English? If there were no opium eaters there would be no opium makers and sellers. Is the man who forges the knife alike guilty as he who plunges it into his own heart? Surely not. Let the Chinese stop the eating and smoking of opium, and our word for it, the troubles of the Chinese government, in respect to the sale of opium, will be few and far between. And upon the other hand, is not opium a good exchange for tea? It is true, that tea does not produce the evil results of opium, in degree, but does it not in kind. It is all quack philanthropy to talk of the evils done by "Christian nations" to some of the heathen. The Christian nations are just as guilty towards their own inhabitants as they are towards the heathen, and surely it is mockery to feel more for the heathen abroad than the heathen at home.

In the year 1848, no less than $40,502,000 were spent for tobacco alone, and ten times more than this for tea and spirits. If this was wrong, England alone is to blame, and her own conscience must be left to accuse or excuse her conduct. We have enough to do with ourselves, and so has every individual and every nation.

Prosperity of the United States.

The London Examiner, discoursing upon this subject, has the following.

"The prosperity is attractive, and it is the boast of some of the journals, that while the members of Congress are daily threatening a dissolution of the Union, neighboring States and countries are anxious to be admitted members of it. Canada talks of annexation; California is pressing for admission; Cuba is ready to join it, and is only withheld by the power of Spain, and the modesty and integrity of the United States in refusing to acceed to its wishes, and to grant some assistance to accomplish them. Mexico has laid aside, it is said, its hostile feelings, and its people are looking forward earnestly and anxiously to incorporation. Central America, too, is soliciting a closer connexion, and hoping for the time to come when it shall form a part of the great republic that is to stretch over the whole continent. Events are advancing rapidly, though the Congress may stand still. Society will not wait for its leave to live, and thrive, and grow, and will in some way or other, settle the slavery question; perhaps before Congress has done talking about it. In America it is seen more clearly than in Europe that society moves faster than legislation, and does not depend on that to regulate its future existence. Thus, while members of Congress are threatening dismemberment, there is gathering round the States as a nucleus other States ready to adhere to it and increase it on every side. It is swelling, too, by immigratiou from every quarter, and exhibiting the extraordinary spectacle of men of nearly every lineage of the earth being harmoniouly absorbed by the great Anglo-Saxon family, and becoming one with it. The reverse of the phenomenon that occurred on the plains of Babel seems there in progress, and many, if not branches of all the various nations of the earth are uniting to use one tongue and live under one law."

Another attack has been made upon Cuba but it has proven no more effective than the first·

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New Inventions.

Artificial Limbs.

To those who have had the misfortune of losing an arm or a leg, the subject of an artificial substitute is of intense interest. Within a few years past quite a number of inventions have come up before the public of this nature, but few of them possess, however, what the inventors profess they do—substantial merit. We might be accused of unfairness did we make mention of such inventions as we consider worse than useless in this branch of trade, and to avoid such imputations from those who are interested in the manufacture and sale of such, we would simply add that we consider the Artificial Limbs patented and manufactured by B. F. Palmer, who now resides at 376 Chestnut street, Philadelphia, as far superior to any now in use. Mr. P. has certificates from those who have used other inventions and laid them aside, substituting his own, which is probably the best testimonial in favor of any invention that could be brought forth.

Saving Hams.

Mr. Horace Billings, of Beardstown, Ill., who has for many years been extensively engaged in the curing of provisions, has after many experiments and much expense, succeeded in making a composition, for which he received a patent last April, to be applied to the covering of the ham, and which he terms Illinois Cement, which most effectually preserves them, so that our Western hams arrive here prepared by him, in a condition superior to the Eastern cured hams. By preparing hams according to Mr. Billings, invention, millions of dollars will be saved to our country. The hams are impermeable to the atmosphere, and will keep for years,—in fact they acquire by keeping a superior flavor. The cement is somewhat elastic and this renders them well fitted for packing. In the whole experience of Mr. Billings, having sent 40,000 of his hams to New York, not a single one has proved bad; 21,000 of such hams are now on their way from Mr. Billings to the house of Jewel, Harrison & Co., New York, and he feels confident that all, without exception, will be perfectly sound. This invention of Mr. Billings, we consider, is one of incalculable value to our country.

The Steering Apparatus of the Steamship Asia.

At a late meeting of the Liverpool Society of Arts, a communication "On the Patent Safety Steering Wheel" of the Asia invented by Captain Frazer, R. N., and Lieutenant Robinson, R. N., was read. It consists in the application to the steering-wheel of a friction band, similar to that used in cranes, which passes round a projecting circumference inside the wheel, and is brought down to a pedal on the deck, by pressure, on which any amount of friction can be put on the wheel. It is not desirable that the helm should ever be at a "dead lock," without the power of yielding a little to the shock of a very heavy sea, as that would endanger the carrying away the rudder. An adjusting screw is therefore, provided, by which the amount of ultimate friction that can be put on the wheel is regulated and not left in the power of the steersman. A great advantage of this invention is the power which it gives of fixing the rudders of vessels lying in the tide-way or harbour, and thereby preventing the continual wear on the pintals of the rudder, and in time the loosening of the stern framing of the vessel.

New Steamship Asia.

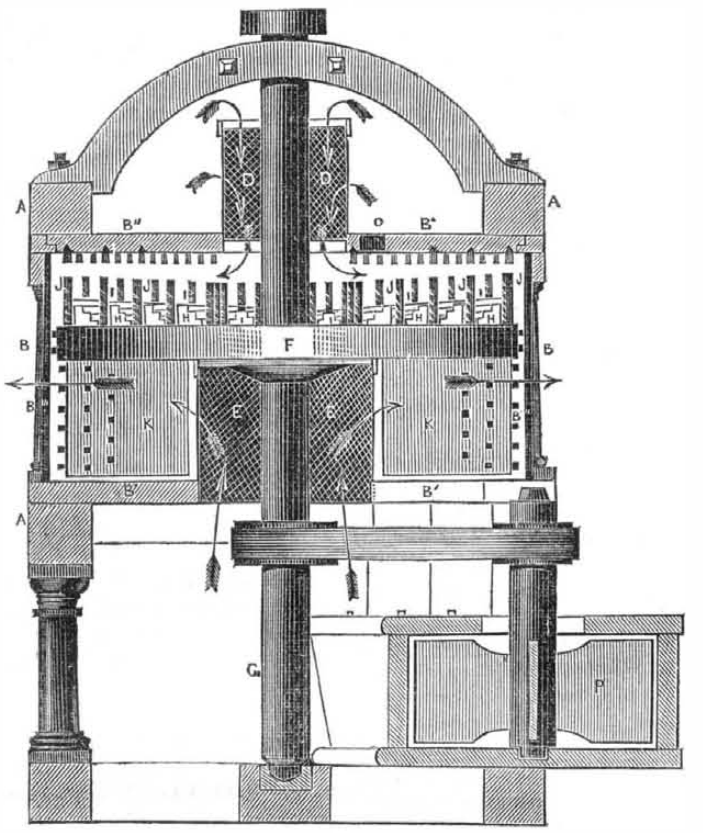
This new steamship, which has made the quickest passage across the Atlantic, was built at Greenock, Scotland, by Steel & Co., we believe, and her machinery was put in by Robt. Napier & Co., Glasgow, she is the counterpart of the Europa, America, and the other fast vessels (all of which have been built by the same parties) only she is much larger, being of greater tonnage than any other steamship built in that country. She is 2,240 tons and has engines of 700 horse powers. From the time she was launched to the time she was ready for sea, it was only two months—her engines having been put up during that short time, and all her equipments furnished.

IMPROVED SMUT MACHINE.

This machine was first invented by Mr. Thomas Brown, and afterwards improved by Buel & Brown, and patented last July.

This figure is a vertical section of the machine; the arrows show the direction of the currents of air when the machine is in operation. In order to make a good smut machine at least three important results must be produced: first, a violent rubbing and beating of the grain so as to separate the smut without breaking or otherwise injuring the grain; second, a strong current of air horizontally and radially through the openings or apertures in the upright stationary cylinder, for the purpose of carrying off the smut and dirt from the grain as soon as separated, so as to prevent it from descending with the grain to the bottom of the cylinder, where it might be carried around with the grain and again be made to adhere to the what: third, a simultaneous upward and downward central current united with horizontal radial currents through the machine. These results are accomplished in the most effectual manner by the following described combination and arrangement of parts.

A is the frame of the machine made in the usual manner. B is the upright stationary cylinder in which the grain is cleaned, composed of two circular heads B″, and a circle of vertical parallel rods B‴ placed sufficiently



far apart to form the required spaces for the passage of the smut and dirt, and otherwise made in the usual manner except in having a circular section, B″, of the head to revolve when required, in order to bring the feeding aperture, C, opposite any point of the compass for the purpose of introducing the grain from any side of the machine, desired. And in having a reticulated or perforated cube, D, around the central opening in the revolving portion of the head to prevent the grain passing into or out of said central opening and at the same time allowing a free and uninterrupted passage for air to the interior of the cylinder, the air passing through the sides as well as top or mouth of the curb; and a similarly constructed curb, E, around the central opening in the bottom, B′, of the cylinder, to admit of a free and uninterrupted passage of the air upward to the interior of the cylinder, the air passing through the sides as well as the mouth of said curb, and said curb preventing the grain working to the centre of the cylinder. These perforated cylinder curbs are found to be superior to the imperforated curbs, on account of their admitting the air to the cylinder more freely. G is a vertical shaft turned by pulley and band, or other means; F is a circular disc affixed to and turning with said shaft. This disc contains the various projections for separating the smut from the grain—throwing it centrifugally against the inside of the case and centripetally toward the centre creating the current of wind through the machine and driving the dirt out of it. H are segment ribs formed on the upper surface of the revolving disc—each segment rib having steps formed on it, one rising above another as their diameters increase, against which the grain is thrown by radial ribs or beater, I, and by which it is rebounded towards the centre and again thrown toward the periphery, by which operation the smut is beaten from the grain. I are the radial beaters, these beaters are arranged at equal distances apart upon the upper surface of the disc and made tapering from the periphery toward the centre, having their sides formed into steps of unequal height, the upper steps of each beater being higher next the centre and gradually decreasing in height as they approach the periphery, and the second range of steps increasing in height as they approach the centre.

These radial beaters are cut by the segment ribs with which they are connected, and all are combined with the disc concentric rows of bearded pins, J, and inserted into the upper side of the disc between the beaters and ribs, for cutting the smut from the grain; and radial wings, K, are affixed to the under side of the disc for striking the grain and throwing it against the inside of the cylinder and also for forcing the air from the cylinder and creating a partial vacuum therein, which is instantly filled by the air rushing in through the lower curbs. A partial vacuum is also created in the cylinder above the disc by the centrifugal action of the radial beaters aforesaid, which is supplied by the air passing through the mouth and sides of the perforated curbs.

The radial wings extend from the periphery of the disc back toward the centre, about two-thirds its semi-diameter, for the purpose of leaving a space at the centre a little greater than that of the diameter of the curb, E, which extends up into said space that the current of air through the bottom of the cylinder and through the perforated curb, may be uninterrupted. These wings, as well as the periphery of the disc are covered with punched sheet iron filled with short nails—square cornered pins or nails are inserted into the under surface of the top of the cylinder in the usual manner against which the grain is thrown by the action of the radial beaters and upright bearded pins for separating the smut from the grain.

The fan, P, for separating whatever dust or dirt may remain on the grain after passing through the smut machine is made in the usual manner and arranged beneath the same and operated by band and pulley. The object of making the top to revolve is for the purpose of bringing the feed opening below the feed spout whenever the feed spout may be placed in the room in which the smut machine is placed, thus doing away with the necessity of paying any attention to the position of said opening in the first construction of the machine or position of the spout. The principal object effected by the use of the reticulated cylindrical curb is to admit uninterrupted and free streams of air through their sides or peripheries at the same time that columns of air are introduced through their ends to the interior of the stationary cylinder and whilst they also perform their legitimate offices of preventing the grain passing through the central air openings in the top and bottom of the cylinder when lined with perforated curbs or short cylindrical reticulated tubes, will introduce a much larger quantity of air than when made without them, and as a large quantity of air is required to be driven through the openings in the sides of the stationary cylinder in order to carry off the smut previously separated from the grain, it becomes important that the cylinder should be supplied with the requisite quantity of air which cannot be effected when the curbs are imperforated, or flat and perforated.

There has been about a hundred of these machines put in operation and without any exception all are in operation, and we have seen certificates from those who have bought and used them, expressing the highest satisfaction with their qualities. Mr. Albert Buel, of Lowville, Lewis Co., N. Y., is sole proprietor, and will attend to any communications addressed to him, (*p. p.*) about rights or for orders of machines, a number of which he keeps constantly on hand ready for delivery, and sends a proper person to put them up, warranting them to answer in every respect as recommended.

Novel and Ingenious Clock.

Mr. John Geldard, of Pawtucket, R. I., has invented a piece of mechanism, capable of being attached to any common clock, by which it is set in motion at any required time. The machinery is made to operate upon three automatic figures, representing negroes, who perform their respective duties with a tact and promptness at once amusing and interesting. As soon as the appointed time, as indicated by the clock, arrives, the first of three "gentlemen ob color" rings a bell with so much force and for so long a time, as to awaken the family from the soundest sleep—indeed he who should sleep through the alarm thus made, would not be very likely to be aroused by a respectable peal of thunder. Whilst darkie No. 1, (who is known by the soubriquet of Sambo), tugs at the bell with a hearty will, Jumbo lights a lamps from a match, which he ignites by drawing across a piece of sand-paper. No sooner is the lamp lighted than Pete is at work. This gentleman most dexterously ignites a torch at the lamp, and communicates the flame thereof to the fuel prepared over night, in the stove. So complete are all the varied arrangements, and so perfect is the mechanism of the whole, that no possible risk of fire is at any time present; indeed, the tact displayed by the "little darkies" would do no discredit to help possessed of human intelligence. It will hence be seen that whilst its inventor is dressing, his automatic aids light a lamp and kindle a fire in his stove—services of no small value on a cold winter's morning.—Nor is this all; Mr. G. and his family may leave home in the morning, and upon returning at night find his stove warm, his kettle boiling and a lamp lighted, and all these services performed without interference or bickering on the part of those to whom they are entrusted, nor do they ever fail in their respective duties, for they are always at their post when required, advantages not always found where human help is employed.

Mr. Geldard is a self-made mechanic, and gives evidence of a clear constructive brain. He is at present the Overseer of the Weaving Department in Walcott & Co.'s Mill, Pawtucket, Mass.

American Sewing Machines in England.

Some of the American Sewing Machines which have appeared in the Scientific American, are now patented in England by the indefatigable Charles Morey, Esq., now of Manchester, formerly of Boston.

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Scientific American

NEW YORK, JUNE 8, 1850.

Charcoal Melted and the Washington Globe.

The Globe, copying our former article about charcoal being melted by M. Despretz, of Paris, "conceives that diamonds can only be manufactured by Nature's cunning hand," and says "we would just as soon expect to hear of the artificial formation of gold, so often tried and so often a failure." It also states that it was generally reported about thirty years ago that Dr. Hare, of Philadelphia, had succeeded in making artificial diamonds, and it was pretended then that "diamonds would soon be of as little value as bits of glass." "The story was," it says, "that Dr. Hare had volatilized charcoal, and that the residium was a substance identical with the diamond, or analogous to it. Can the Scientific American give us any information ?"

We know no more about Dr. Hare's *diamonds* than the Globe, but we know that his improvements in the blow-pipe, have been of more value to the scientific world than many diamonds. The comparison of the Globe respecting gold and the diamond, is not a correct one. It is well known that the chemical identity of carbon and the diamond is C=D, whereas gold is a simple substance, unreducable to a gas, like the diamond. Artificial diamonds may never be made, but *we* certainly have as good and as sound a hope of their artificial manufacture, as we have of many other things once deemed impossible, especially the *lapis lazuli*, once found only in China, Persia, and Great Bucharia, but now manufactured in France. The composition of the *lapis lazuli* was known long before the art of making it was discovered, and the composition of the diamond is also known—the way of making it, is what has yet to be discovered. There is something more about it on another of our columns this week, to which we direct the Globe's attention. M. Despretz is a chemist of great celebrity. His experiments in determining the amount of oxygen absorbed in the combustion of various metals and minerals, have done a great deal for science, especially in determining the relative value of steam, and galvanic power.

Strikes for Wages.--Mechanics Associations.

As there have been quite a number of strikes for wages lately, we must say that we know of no meaner trick than to suddenly stop working on a demand for higher wages on the one hand, or a reduction of wages suddenly, on the other hand, with the alternative of taking the reduction, or "march." It is for the interest of both employer and employed to work together in harmony, yet it is a fact that they have generally acted upon the principle of *antagonistical benefit*, as if the ruin of the one was to be the elevation and to the benefit of the other. At the present moment almost all the trades of New York have formed themselves into "Associations." This is the result of an organization called the "Mechanics Mutual Protection," which was instituted at Buffalo, in New York, in 1845. It spread over New York and Ohio, considerably until it numbered about 120 societies—not an important city being without two or three of them. It began to decay in 1848, and at the present moment is any thing but prosperous, still there are quite a number of societies in the fraternity, yet. The new Trade Societies in this city are organized on nearly the same principles, and some of the leading men were prominent in the "Mutual Protection." The first object of this Association was to unite the employers and their workmen together, by cultivating a good will, and working to their mutual advantage (mutual protection.) This was a good object, but objects and actions seldom go hand in hand. It was a secret Association, and many good men were opposed to it on that account, but it could not be conducted otherwise without a complete change in its organization.

Societies of this kind can only result for good, when good objects and motives regulate the conduct of their members. There are so many wild and contrary notions held by different men among them, that it is scarcely possible for them to move in harmony for any length of time. This is the reason why such societies are rising up and falling down all the time. In all likelihood the present organizations will be voiceless in two years hence.—This need not be so, but judging from the past, it will be so : "Ye did run well for a while," is as forcibly exemplified now in all organizations for good objects, as it was when applied to the early renegade christians.

There has never been, and never will be, any good derived from organizations, which have not as keen an eye to the moral conduct of their members as to the moral objects to be attained. Some of the new societies are particular on this point, and this is a good sign, but it is very difficult to carry out such principles, for designing men often creep in unawares. But if honor, moral character, intelligence and a desire to work for good and work perseveringly, characterize the conduct of the majority of the members of such societies, they may do a great deal of good. They should beware of being guided by too much talk for one thing. Frothy orators are not the best of guides, but he who crows loudest generally has the most followers for all that, and this is one reason why so many good men, who join such societies, turn from them, after a fair trial of their merits.

Falling of the Walls of Buildings.

We have just had another warning to call the attention of our city authorities and our citizens, to the importance of erecting stronger walls in our city buildings. On last Friday afternoon, the whole front wall and a great portion of the side walls of a four-story double house, on the corner of Broadway and Fourth street, fell with a tremendous crash, carrying in the roof and all the partitions. Happily no one hurt ; the house was being repaired and a number of the interior walls had been torn down. The architect of repair did not like the looks of things, so he kept a sharp look out, and when the first crack was heard all were ready and rushed out free from the danger. The building had every appearance of great solidity, but there was not the least union between the bricks and mortar—not the least. The bricks which fell were as free from mortar as if they never had seen the face of lime, and we suppose that they saw but very little of it—sand, and perhaps sea sand at that, being the kind used for the mortar, with a dusting of lime for the name of the thing. After what we have said before, respecting the erection of proper walls, we hope that something will be done to prevent future evils of the kind mentioned ; but we are afraid that all will pass over unheeded. It was said in England, respecting the many railroad accidents which at one time took place, "that no law would be passed to prevent them, until once a Bishop or an M. P. was killed," and it may be that it will require some big officer or magistrate among us to become a victim to falling walls before prompt action be taken to prevent such evils for the future.

Industrial Resources of Nova Scotia.

We are indebted to Prof. Gesner, of Halifax, for a copy of his valuable work on the resources of this important Province of the British Empire. Prof. Gesner is the inventor of a new and important improvement in apparatus for making gas from bitumen, and which has been patented in the United States. His apparatus is about to be introduced into public use in our city, and he is now here for the purpose of erecting it.

Much as we had heard and read of the natural resources of this province, our ideas of them fell far short of the mark. The Government of Great Britain is certainly ignorant—if not ignorant, at least unwise in its policy towards this colony, and that of New Brunswick, especially in respect to the coal fields of the two Provinces which embrace an area of 10,000 square miles. This work is for sale at Mr. Putnam's, No. 155 Broadway, and we must say, that no American Geologist, especially, can be without it, and be posted up in the science.

British Industrial Exhibition of 1851.

To Foreign Exhibitors, from the published articles of the Committee :—

"No articles of foreign manufacture, to whomsoever they may belong, or wheresoever they may be, can be admitted for exhibition, unless they come with the sanction of the Central authority of the country of which they are the produce. Her Majesty's Commissioners will communicate to such Central authority the amount of space which can be allowed to the productions of the country for which it acts, and will also state the conditions and limitations which may, from time to time, be decided with respect to the admission of articles. All articles forwarded by such Central authority will then be admitted, provided they do not require a greater aggregate amount of space than that assigned to the productions of the country from which they come ; and provided also, that they do not violate the general conditions and limitations. It will rest with the Central authority in each country to decide upon the merits of the several articles presented for exhibition, and to take care that those which are sent are such as fairly represent the industry of their fellow countrymen. Her Majesty's Commissioners will consider that to be the Central authority in each case which it is stated to be so by the government of the country. Having once been put in communication with a Central authority in any country, they must decline absolutely and entirely any communication with private and unauthorized individuals ; and should any such be addressed to them, they can only refer it to the Central body."

Here, then, no American Exhibitor will be permitted to appear with his machine, &c., unless forwarded through a "Central Authority," a Committee or Agent appointed by our government. The President and his Cabinet surely cannot be ignorant of this, for our Minister at London has sent circulars to different Associations in this country. Yet no move has been made, and no "central authority" appointed for the purpose required. Such a dilly-dallying is reprehensible ; unless something be done soon, America will not be represented there. Notice of these things should be sent to the Scientific American, for we have a larger circulation among those who in all likelihood will be, or would like to be exhibitors, than all the rest of our papers. But there is either much carelessness, or ignorance in our public men about these things. They can see no farther than their noses unless it be into politics, and then they can smell either the battle or the feast afar off.

A Few Words to Readers.

We have frequently advised you to be careful of your numbers—to lay past your paper neatly after you have read it, in order that you might bind it, when the volume was completed. When we speak thus, we are sincere in saying that you receive more benefit by far from the knowledge upon one subject and another, imparted through the columns of the Scientific American, than the value of your subscription ten times told.

It is surely not wise to throw away or be careless of a newspaper devoted to the discussion of useful subjects, and the spread of useful knowledge. Why ? Because if there is nothing in one paper that may be of interest or benefit to you now, it may be of benefit to you at some other time. In this country there are so many changes of business, &c., in the course of almost every man's life, that what is of no consequence to one to-day, may be of benefit to him to-morrow. A good plan for the readers of papers to pursue is to keep an index blank pocket-book, and note down particular articles, where they are to be found, and their nature. This is a plan we have pursued with profit, even with respect to the articles of our own writing.

Invention of Drilled-Eyed Needles.

In copying an article from our excellent exchange, the "Sentinel of Freedom," Newark N. J., on the 18th ult., we remarked that Mr. Wm. Essex, of that place, was extensively engaged in the manufacture of "Drilled-eyed Needles," and that "he was the original inventor." Since copying the said statement, we have been called upon to correct the latter part of it, and we cheerfully do so, it being our rule to give "honor to whom honor is due." The inventor of the "Drilled-eyed needle" is Mr. Wm. Green, of Ashwood Bank, near Manchester, England. No patent was ever obtained for the invention, and there is none in existence for any process of the needle manufacture. We forget whether we were informed that Mr. Green was living or not ; at any rate, the invention is not an ancient one. We have been shown some fine specimens of drilled-eyed needles manufactured by John Coles, of Newark, N. J., for which premiums were awarded him in 1846-7. We had no idea before that such fine needles were manufactured in the United States. The material, however, to make them, is all imported. We hope the time is not far distant when the finer, as well as the coarser kinds of metal, for different manufactures, will be made at home, equal to any now made abroad.

Patent Metalic Paint for Iron, &c.

We have received a circular stating that there is a mineral paint, sold by Mr. De Wolf, No. 108 Broad street, New York, and Mr. Fearing, Broad street, Boston, which has been tried on iron exposed for three years, without change, to the action of sea water. It is stated to be far better than red lead—being unchangeable and nearly indestructable. The color is of a reddish brown and reddish purple, and is stated to be *pre*-eminently adapted for all kinds of iron work exposed to salt water or the action of the atmosphere.

We are glad to know that a better substance than red lead for protecting iron has been discovered. Heretofore we have known of nothing to equal the lead, and we know that much trouble was experienced from the want of a proper knowledge to lay it on. Red lead should be put on the iron in very thin coats, letting one dry perfectly before the other is put on. Experiments with plates of iron treated this way, and plates treated with various other substances, were made by the Oriental Steam Company, London, by sinking them in the sea for two years. The plates covered with the red lead were taken up as sound in every respect as when laid down, the others were perfectly honeycombed. See advertisement.

An Important Challenge to the Mechanical World.

MR. EDITOR—In an article published previously, touching the peculiar merits of D. Dick's "Anti-friction Press," I stated that I would prove its advantages by punching a larger hole through thicker iron than could be done on any other machine by the same applied power, with the same length and movement of lever. That I would give bonds in the sum of $1000 that I would move a weight of 100 tons, or 1000 tons, through one foot or ten feet perpendicular space, in three-fourths the time that the same could be moved on any other kind of machine, by any man in America or Europe, on the execution of like bond on the part of any competitor. And I now renew that proposition with this change, that the weight shall not be less than 200 tons, nor the distance less than two feet, and that the specific gravity, (taking the atmosphere as a unit), of any opposing operator shall not be materially in his favor : also the two machines shall belong to the successful competitor. JOSEPH E. HOLMES,

(Agent for D. Dick,) 794 Washington st., N.Y.

Patent Lists.

Last week, in the lower House of Congress, on motion of Mr. Morehead, it was Resolved, That the Commissioner of Patents be and he is hereby directed to furnish to each member and delegate of this House three copies of the "List of Patents for inventions and designs issued by the United States from 1790 to 1847, with the patent laws and notes of decisions of the United States for the same period, compiled and published under the directions of Edmund Burke, Commissioner of Patents," provided no expense be incurred for reprinting. As far as we can judge the resolution cannot be carried out.

The population of Lawrence, Mass., is 8,341, showing an increase of 1,116 in eight months.

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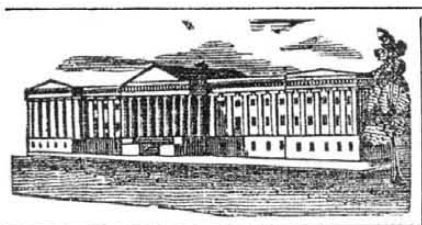

☞ Our weekly List of Patents and Designs contains every new Patent, Re-issue and Design emanating from the Department, and is prepared officially, expressly for the Scientific American, and for no other paper in the city, consequently other journals are obliged to wait the issue of the "Sci. Am." in order to profit by the expense to which we are subject, and of course must be one week behind. Those publishers who copy from this department in our columns, will, in justice to us, give proper credit for the same.

LIST OF PATENT CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 21, 1850.

To W. T. Barnes, of Buffalo, N. Y., for improvement in Quilting Frames.

I claim folding and rolling the layers of any fabric, (which it may be desirable to quilt) verily by the use of check rods attached to rollers as herein described, the rollers when operating, made to revolve alternately till the fabrics are folded and strained to the desired tension and position.

To A. Blanchard of West Cambridge, Mass , for improvements in apparatus for jointing slats, boards, &c.

I claim the combination of the frame, with its supporting rails, the adjustable support or bed, bar, its supporting, and elevating screws and contrivances, and the movable clamping bars, with their clamp screw mechanism, the whole being applied and made to operate together, and in connection with the plane, substantially as above specified.

To P. J. Clark, of Meriden, Conn., for improvement in making the reservoirs of metallic lamps.

I claim the shell of the lamp reservoir, with the feeder, standing out from one side of one single plate of metal so as to require only one seam or solder joint in the manner substantially as herein described.

To A. Dunn, of Dalston, England, for improvement in Galvanic Registers for steam boilers. Ante dated Oct. 12, 1848.

I make no claim to any of the parts separately nor do I confine myself to the details as herein shown and described so long as the peculiar character of my invention be retained.

But what I claim is a galvanic battery or generator of electricity and its current wires or conductors, an alarm or bell apparatus and a mercurial column tube combined with a steam boiler and made to operate substantially in manner and for the purpose of indicating the temperature or pressure of steam in the boiler as specified.

To D. Foster, of Whitestown, N. Y., for improvement in apparatus for jointing boards.

I claim the combination of the grooved plane with the guides, the sliding posts, and two adjusting screws, arranged in the manner and for the purpose herein described.

To C. D. Gordon, of West Martinsburgh, N. Y., and Samuel S. Gouldthrite, of Lowville, N. Y., for improvement in Smut Machines.

We claim first, the combination of the cup, with the shaft, for the purpose of receiving the grain and conducting it all around between the two plates, as herein described.

Second, the adjusting bearing or guide for setting the shaft, vertical, consisting of the box, with the blocks, and the screws, constructed and arranged as herein set forth.

Third, the circular revolving winged and slotted drum, in combination with the scouring plates, in the manner substantially as described, producing a current of air for carrying off the smut, dirt, and other foreign matter.

[See engraving No. 17 this Vol. Sci. Am.]

To E. Hamilton, of Bridgeport, Conn., for improvement in machinery for making copper tubes.

I claim the employment of the horizontal heat retaining conducting tubes, in combination with the grooved rollers, arranged and operating in the manner, and for the purpose herein set forth.

To A. and O. B. North, & Stephen Frink, of New Britain, Conn., for improvement in machinery for making four-sided buckles.

We claim first, the combination of the vibrating carriage, in which is placed the die, the toggle levers or benders, the gauge bars, detacher, holders, and cutting lever, the whole constructed and operating substantially as herein described, and by means of which a four sided buckle is formed.

Second, the combination of the sliding frame, and the vibrating hook, with the grooved die, and the fly punch, the whole constructed and arranged substantially as described.

Third, the combination of the vibrating jaws, the cam, and levers, with the forming block and rod, and sliding bar, the whole constructed, arranged, and acting substantially as herein described.

To C. Payne, of South Lambeth, England, for improvement in processes for preserving wood. Antedated January 9, 1842.

I claim the combination of the process of immersion, absorption, exhaustion pressure and decomposition, substantially in the manner and for the purpose as herein before explained.

To J. Roberts of Penn's Square P. O. Pa., for improvement in Fanning Mills.

I claim the employment of the racks, perforated gauge plates, hooks, and confining rods, in combination with the shoe, for confining and adjusting the riddles, and screen, in the shoe, in the manner described.

I also claim the arrangement of the vibrating longitudinal inclined conducting trough, in combination with the transverse inclined conducting trough, attached to the vibrating shoe for receiving the cleaned grain from the screen and conducting it directly into the measure or bag, as described.

To H. H. & F. H. Stimpson, of Boston, Mass., for improvement in water-backs for cooking-ranges.

We claim casting the induction and eduction pipes of the hollow back of cooking ranges each with a convergence towards the other, when the lines of the inside of the top and bottom of the hollow back converge with the same angle and coincide respectively with the lines of the induction and eduction pipes, for the purpose and in the manner described.

We also claim constructing the hollow back itself with the lines of the inside of the top and bottom converging towards each other for the purpose of preventing the accumulation of air and securing a ready flow of water, as described.

To A. Stocker of Ogdensburgh, N. Y., for improvement in Tailor's Measures.

I claim the instrument as above represented for ascertaining the slope of the shoulder, also the instrument represented for ascertaining the measure from the socket bone to a line perpendicular to the most prominent parts of the back substantially as described and for the purpose set forth in the specification.

To J. Taylor, of Loch Winnoch, Scotland, (Assignor to John, Joseph & Francis Crossley, of Halifax, England, for improvements in the preparation of pile for rugs, &c.

Having described my improvements in the manufacture of carpets, rugs and piled fabric, I lay no claim to the mode herein described of pushing out the wool from the machine nor to the cementing of the same to the fabric which forms the back of the rug or carpet; but I claim the described process of combining or arranging together, and in the pile, the threads or yarns composing the figure or figures, the same consisting in winding the said threads on a beam or roller, by the aid of a collar, pattern and index and other contrivances essentially as specified, and cutting the said threads and transfering them, on, and by means of the roller to the pile in the machine in which they are compressed, cemented and cut, all as herein before explained.

To A. G. Warren, of Norwich, Conn., for improvement in Sofa-bedsteads.

I claim first, the drawer with castors made so as to serve the double purpose of a receptacle for the bed clothes and a support for the back as described.

Second, I claim the sliding head and foot boards, so connected with the back that they slide in or out as the back is raised or lowered by the contrivances as above described or other equivalent devices.

To J. Weidman, of Littlestown, Pa. for improvement in Fanning Mills.

I claim my improved construction, and arrangement for shaking and operating the sieves in a winnowing mill, in the manner herein described.

To C. Westbrook, of Washington, D. C., & H. J. Rogers, of Baltimore, Md. for improvement in electro-chemical telegraphs.

We claim recording telegraphic signs on the surface of a revolving metallic cylinder, plate, or other equivalent surface, by means of an acidulated liquid, or saline solution, or water, held between the point of the wire conductor and the metallic recording surface, by means of a non-conducting porous substance, contained in a glass, or other non-conducting reservoir, in which the recording fluid is contained, to which the electric current from a battery is applied by means of any of the known forms manipulators and anvils used for making or breaking the circuit, the recording fluid being applied to the metallic recording surface, substantially in the manner herein fully set forth, by which the use of every description of paper is dispensed with, whereby saving great expense in telegraphing.

To A. Woolson, of Springfield, Vt., for improvements in machines for shearing cloth.

I claim first, a flexible rest constructed substantially as herein above described.

Second, making the rest susceptible of extension on each or either end, by combining with the ordinary stationary rest and on each side thereof a flexible and movable rest as herein above specified.

Lastily, I claim making an extension or flexible and movable rest, self operating or so as to be changed by the cloth itself in its passage through the machine, all as herein above set forth.

DESIGNS.

To A. C. Brownell, of Providence, R. I., for design for stoves.

To J. C. Bailey & R. Wheeler, of Utica, N. Y., for design for stoves.

Patent Rights.

From the very outest of the Patent Office, delay and difficulty have always attended the business of securing, what the Patent laws originally designed, the rights of inventors. The ostensible object of those laws was, of course, to encourage the mechanic arts, and the general interests of the country, by holding out inducements to men of genius and talent. They have been led to believe that their labor and sacrifices would be amply protected, and, under this belief, years of wasting toil have been sacrified. But has the promise been fulfilled? —Why, in nine cases out of ten, there has been no adequate protection. After years, perhaps of patient investigation, and expensive experiments, the inventor suceeds in reaching the door of the Patent Office, and instead of having his application promptly acted on, he is kept in suspense, waiting from month to month. This delay so vexatious, and too frequently fatal to the care-worn expectant, whose purse and patience may both have become exhausted, is the less excusable from the fact that the law always demands its fee in advance. It takes the poor inventor's last dollar, and then takes its own time to do him simple justice. The excuse for this delay is the want of adequate force to perform the simple duty which the law enjoins—an excuse that may answer once, but when continued, as it invariably has been, from year to year, it becomes an insult and an absurdity.

This is one cause of complaint, which we are glad to learn, as we do from an intelligent and accomplished member of the Philadelphia bar, who has visited Washington in behalf of the inventors, is about being remedied. A bill has been introduced in the Senate, by the Hon. Mr. Turney of Tennessee, that, will effectually guard inventors against some of the most serious annoyances to which they have been so long subjected. Another great evil which this proposed improvement will correct, is the monstrous wrong, which perfectly unprincipled patentees have time and again perpetrated, of securing a re-issue of old patents, when new and valuable improvements have been made, by other parties, for the purpose of taking out new papers, that shall cover all improvements which others have accomplished. This monopoly of the rights of others, this palpable infringement and violation of the clearest principles of justice, has been practised by those who have the assurance to take advantage of any defect that may exist in the laws. We are glad to learn that this wrong also, is to be remedied, and that there is every prospect of the passage of the new bill which is designed to secure the just and equal rights of all. The inventors, as a class, are numerous, talented, and deserving; and, in connection with their friends, throughout the country, form a body whose extent, influence, and interests are certainly worthy of consideration.

[The above is from McMakin's Model Courier.

Manufacture of Diamonds.

The Paris correspondent of the London Times says:—"The scientific* world has been in a state of commotion during the whole week, in consequence of the publication of the discovery of the long sought for secret of the fusion and chrystallization of carbon. The Sorbonne has been crowded for the last few days to behold the result of this discovery in the shape of a tolerable-sized diamond of great lustre, which M. Despretz, the happy discoverer, submits to the examination of every chemist and *savan* who chooses to visit him. He declares that so long ago as last autumn he had suceeded in producing the diamond, but in such minute particles as to be visible only through the microscope, and, fearful of raising irony and suspicion, he had kept the secret, until, by dint of repeated experiments and great labor, he had completed the one he now offers to public view. Four solar lens of immense power, aided by the tremendous galvanic pile of the Sorbonne, have been the means of producing the result now before us. M. Despretz holds himself ready to display the experiment whenever it may be required. The diamond produced is of the quality known in the East as the black diamond, one single specimen of which was sold by Prince Rostoff to the late Duke of York, for the enormous sum of twelve hous and pounds!"

[When we heard a few weeks ago that charcoal had been melted like metal, we noticed the fact as being a near approach to the making of artificial diamonds. We were not wrong; the same subject occupied the mind of Sir Humphrey Davy. The above discovery however, is only a further approach to diamonds of the first or second water.

Making Haste to get Rich.

One great and growing sin of a national character is an inordinate desire to get rich and rich in a huriy. As wealth is the only aristocracy in America, every man seems bent on attaining to that important distinction. Competency is not enough with the majority, every one seems ambitious of being a Crœsus. The "haste to get rich," fosters a speculative spirit, than which nothing can be more generally fatal to the individual, or demoralizing to the State. Tired of slow gains, despising the laborious ascent up the steep of fortune, men rush hap-hazard into schemes for the sudden acquisition of wealth. Bubbles are blown, consequently, all around us. To-day there is a great speculation in this thing, as yesterday it was in that, and as to-morrow it will be in something else. A few, by a lucky turn of the card, make fortunes, but the great mass of the players stake and lose their all. What can be more fatal to society than such practices? The man who amasses wealth thus suddenly rarely retains it, while his momentary success lures thousands to the same delusive pursuits. Honorable labor is, therefore, almost despised; a man of parts is expected to be above hard labor.

Mechanics Fair.

The Sixth exhibition of the Charitable Mechanics Association will open on the 11th of September next, at Fanuel and Quincy Halls, Boston. The Association respectfully solicit the Mechanics, Manufacturers, Artists and Inventors of our country to offer for Exhibition and Premium all works of art calculated to promote the interests of mankind. Medals (of gold or silver) or honorary Diplomas will be awarded, as the articles exhibited may deserve; and the managers pledge themselves that the strictest impartiality shall be observed in their distribution. F. H. Stimpson, Sec'y of the Association will furnish particular information to all who address him, post paid.

Near 600 souls have been hurried into eternity by the explosion and burning of steamers in this country within the last five months.

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TO CORRESPONDENTS.

"D. A. S., of Boston."—Kobell's Discovery, that you refer to, is the method proposed by Kobell, a native of Munich, by which pictures drawn in bistre or India ink, may be multiplied by the process of Electrotype, or galvano-plastics.

"R. A. J., of Pa."—A super-sulphate contains a greater portion oi acid than the sulphate or neutral sulphate, a bi-sulphate twice as much while a sub-sulphate contains a less portion than the neutral.

"J. M. C. of Pa."—We should be glad to give you the information asked for, but we find it impossible to do so without furnishing drawings or a model. Scarcely any two concerns use the same kind of fastenings. See one in No. 22 this volume.

"N. M., of Mass."—You are correct in stating that the gas which is generated will pass out through the smoke pipe, without any danger of an explosion. We have not heard any thing from the furnace yet, but expect to soon.

"W. H., of Mass."—The device shown in your letter of the 27th is one of the most effective yet common arrangements for the purpose in use. No patent could be obtained for it.

"J. W. C., of Ind."—Such an engraving as you want would cost about $5. People, as a general thing, we should think, would prefer to pen their own thoughts, if they could do it as fast. Many can write much faster than they can think, and in most cases a machine for printing would knock their ideas out of form. We do not think that such a machine could be made to work well.

"J. H. B., of Ohio."—You could not use any part of Mr. E.'s patent without paying him for it—this is as it should be. You only make oath that you *believe* yourself to be the original inventor of the improvements described. No one would claim what they know to be old, and ask a patent for it, understanding the Patent Laws. If you wait for Porter's baloon to bring you here, we should despair of ever meeting you this side of eternity.

"L. A. B., of N. Y."—The price of Mr. Wise's works upon ærostatics is, we believe, $1,50, we do not think it is for sale in this city, but it should be by all means.

"A. C. H., of Ohio."—There are no good works upon distilling in existence. We have sought for them but without success.

"R. M. T., of Ala."—We cannot furnish you with Vol. 4, but have sent the back numbers of the present volume.

"H. & W., of Anderson."—We have to acknowledge the receipt of J. C. & Co.'s draft for $26, for which we are much obliged.

"R. D. A., of San Francisco."—Your order will be attended to without delay.

"N. H. R., of St. Louis."—We have been unable to obtain such a work upon lightning conductors as you desire, and have given you credit for the balance of the money, which will continue the paper two years.

"J. H. S., of C. W."—We cannot learn that any book pattern has been patented which possesses the same feature in regard to the movable heel piece that yours does; it would be that part alone which would be patented in this country, we think.

"O. & H., of Mo."—A six horse engine would be sufficiently powerful for your demands, we should think: see one advertised in this paper.

"V. P., of Ind."—On the 30th ult. we forwarded you by mail $20 which we hope reached you duly.

"S. McR., of Brooklyn."—We shall have occasion to write Mr. B. in a few days and will enclose your letter to him. This is the better course to pursue towards one when we believe to be an upright inventor.

J. C. H., of Miss."—Mr. Wise's work is not for sale in this city that we know of. It would be *wise* in Mr. Wise to establish an agency here where his work could be obtained.

"C. T. W., of Ky."—We have to thank you for a copy of the "Political Guide." It will no doubt prove interesting and instructive.—Shall write you before long.

"Ja'r'cee."—We will give yours attention in a short time.

"P. C., of Conn."—The iron tube bridge is not patented, although used—it is public property. The wood would not make it either so strong or stiff, but it would be cheaper in this country and that is a great deal. We believe that it could not be patented, but your ideas are good, and it would be a good bridge.

"A. D. & Co., of Mass."—Mr. Hoole informs us that Mr. Brown's order has been filed and the punches sent according to Mr.B.'s direction.

"C. S. T., of N. H."—Messrs. B. & M. honored your draft promptly.

"J. T. M., of Pa."—If your Printing press is constructed upon essentially the same principle as the calico machine, no patent could be obtained for it. $2 received.

A. C, of Mass., C. S. T., of N. H., A. L., of Conn., and C. F. B. of R. I.—

Your specifications, with drawings, models, and fees have been forwarded to the Patent Office since our last issue.

Money received on account of Patent Office business, since May 28th, 1850:—

L. S. S., of Me., $20; A. C, of Mass., $30; C. S. T., of N. H., $20; F. P. T., of N. J., $25, and R. D. P., of Vt., $60.

Important Notice to us!

Whenever any of our friends order numbers they have missed—we shall always send them, if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for cannot be supplied.

ADVERTISEMENTS.

Terms of Advertizing.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them for any price.

Patent Office.

128 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms. Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

Arrangements have been made with Messrs. Barlow and Payne, Patent Attornies, in London, for procuring Letters Patent in Great Britain and France, with great facility and dispatch.

MUNN & CO.,
128 Fultonstreet, New York.

PATENT METALLIC PAINTS.—These paints are of a rich purple and red brown; their identity with iron secures them from galvanic action. They have been exposed on shipping to the action of salt water and sulphuretted hydrogen for upwards of three years, without change. They are simply mixed with oil, the same as other paints, and dry rapidly, and are the best preservative for every kind of wood work, and take a high polish. These paints have been analyzed by Augustus A. Hayes, of Boston, Mass., who has given the following certificate:—"As a permanent pigment, this mineral must rank with the most unchangeable and indestructible basis. For covering metallic ware and masonry, its composition shows that it is eminently fitted. A. A. HAYES, State Assayer." The article may be had in any quantity from T. L. DeWolf, 108 Broad street, N. Y.; L. Fearing, 26 Broad st., Boston, and T. & W. H. Shaw, 201 Fore st., Portland at 4 cts. per lb., by the cask. LINCOLN FEARING, Agent. Boston, Mass. 1*

ALCOTT'S CONCENTRIC LATHES.—We have on hand a few of these celebrated Lathes, which the inventor informs us will execute superior work at the following rates:—

Windsor Chairs, Legs and Pillars, 1000 per 11 hours. Rods and Rounds, 2000; Hoe Handles, 800; Fork Handles, 500; Broom Handles, 150 per 11 hours.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid). MUNN & CO.,
14tf At this Office

SAW MILL MACHINERY.—The subscriber would respectfully inform his friends, and the public generally, that he still continues to manufacture, and keeps constantly on hand all kinds of saw mill machinery, consisting of log saw mill, fitted up in the best manner and most approved mechanical mode, patent improved slitting and panel saw mills, (patented by himself and proved superior to any other in use) also for veneering, scroll and circular saws. Shafting and other machinery fitted to order. Persons in want of such machinery will promote their interests by an interview with the undersigned, before engaging elsewhere, articles embraced above, as his long experience both in the manufacture and use thereof, has given him a thorough practical acquaintance with the best models of constructing.

THOMAS J. WELLS,
38 4* Foot of 29th St., N. R., New York.

CHAIN PUMPS.—A superior article of galvanized chain, with fusible metal elevators, and all the parts complete, or any part thereof, sold wholesale and retail at the lowest cash prices, by AARON WILBORN, No. 4 Harvard st., New Haven, Ct. 38 2*

THE THIRD ANNUAL EXHIBITION of the Maryland Institute for the promotion of the Mechanic Arts, will be opened at Washington Hall, Baltimore, on Monday the 14th Oct., 1850. The Committee of Arrangements earnestly invite the mechanics and manufacturers throughout the States to exhibit speciments of their handiwork and become competitors for the prizes offered as premiums for superior merit, either in design or execution:—15 gold and 60 silver medals are offered to male and 40 to female contributors. Competent judges will be carefully selected, and increased facilities afforded to all those desiring to present articles for premium or exhibition. For further information, address the Chairman of Com. on Exhibition, Baltimore.

37 5 C. W. BENTLEY, Chairman.

TO STONE CUTTERS, QUARRY OWNERS, and others—The North American Stone Dressing Co., capital $168,000, are the owners of Wilson's Patent for Dressing Stone, and have established an agency in the city of New York. They are authorized to engage in quarrying stone to any extent and will entertain proposals either for purchase of the right to run machines under said invention, or for capital to aid in opening quarries on a large scale. Four machines are now in successful operation in N. Y. city, where they can be seen dressing stone of every degree of hardness, giving perfectly true surfaces and corners, and with a simplicity, efficiency and rapidity which will insure a highly profitable result to all who shall secure rights. Application can be made to

SHELTON, FLAGG & ANDREWS, Attorneys to the N. A. S. D. Co., 12 Wall st., N. Y. 36 4*

IMPROVED FILTERERS.—Fessenden's Patent Pocket Filtering Tube. This is one of the most complete articles ever offered to the public, and is especially adapted to the use of travellers, by sea or land; it being light and compact, and the water being filtered by the very act of drinking. This filter having been duly patented, all persons are hereby cautioned against purchasing or using filters intended or calculated to infringe upon the rights of the patentee.

Fessenden's Division Filter.—This is the most perfect and scientific pressure filter now in use; it is more durable, more easily and thoroughly cleansed, and purifies the water more completely than any thing of the kind ever before invented. The above mentioned filters are for sale at the store of D. H. Butts & Co., 15 Canal st.; Horace H. Day, 23 Cortlandt street, and E. Bartlett, 31 Park Row, where purchasers are invited to examine them. Orders left with D. H. Butts & Co. promptly attended to. 36 4*

NEW STYLE AND IMPROVED SLIDE LATHE.—SCRANTON & PARSHLY, New Haven, Conn., will sell the best slide Lathe for $150 to $200 less than ever before sold. They are built in the most substantial manner—the heads geared and arbors large and of the best cast steel; the slide rest is held to the bed by guides, fed by a screw 2 in. diameter, and feeds from 50 to the in. to 5 1-2 in. pitch, working several hundred different pitch threads within these extremes. Besides the regular lathe feed it has the facing up feed. It is admirably adapted for holding and boring boxes, cylinders and turning and cutting screws. One extra large size face plate, centre rest and reversing pullies go with each lathe. The 12 ft. lathe weighs 4000 lbs. turning 8 ft. 5 in., price $450. The 15 ft. 7 in lathes 4500 lbs., turning 12 feet, $500, swings 26 in. For further particulars address as above, (p. p.) Other lathes for sale as heretofore. 34tf

MACHINE BANDS, RUBBER HOSE, &c.—After 20 years devoted to the manufacture of India Rubber, the undersigned feels confident of his thorough practical knowledge of the quality of goods in his line. The three factories now owned and operated by him, turn out large quantities of all kinds and styles of rubber goods in use, mostly vulcanized rubber. Orders for railroads, factories and merchants executed with intelligent regard to wants and best interest of the customer. Warehouse 23 Courtland st., N. Y.; 1 factory at Great Barrington, Mass., with whole flow of Housatonic river for power; 1 at New Brunswick, N. J., by steam power; 1 at Piscataway, N. J., water power. These 3 factories embrace machinery and apparatus costing over $50,000—enabling the owner to execute orders with more promptness than any other establishment in the United States.

33 10* HORACE H. DAY.

UNITED STATES RAILROAD GUIDE and Steamboat Journal: a monthly publication, containing official time advertisements, and tables of all the R. R. Co.'s; stations, distances, fares, time of travelling—with all the principal steamboat and stage lines in the country; also, hotels, mails, postage, almanac, &c. The Guide Journal presents stronger claims to public patronage, and possesses superior advantages over all others of a similar nature. Dexter & Bro., General Agents. Sold by all News Dealers, and on all the railroad and steamboat stations throughout the United States. Single copies 12 1-2 cents; per hundred, $7. Yearly subscription $1,25.

Publication Office 43 Ann st., N. Y.
GEO. R. HOLBROOK & CO., Publishers.
35 4*

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by

QUARTERMAN & SON,
36 3m Painters and Chemists

WOOD'S PATENT SHINGLE MACHINES.—These excellent machines, illustrated and described in No. 23, Vol. 5, Scientific American, are offered for sale in Town, County and State Rights, or by single machines. There are three sizes, the first cuts an 18 inch shingle, price, $100; 2nd cuts 24 inch, price $110; 3rd, 28 inch, $120. Orders addressed to J. D. Johnson, Easton, Conn., or to Munn & Co., "Sci. Am." Office, will meet prompt attention. 36 tf

WOODWORTH'S PLANING MACHINE—For sale. the right to use this justly celebrated labor-saving machine in the following States, viz. Pennsylvania and Virginia west of the Allegheny Mountains, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Georgia, Alabama and Mississippi. For particulars apply to Elisha Bloomer, 304 Broadway, or to E. P. Norton, Esq., Cincinnati, Ohio. 34 5*

IMPORTANT INVENTION.—GURLEY'S beautiful and unique machine for gumming saws, noticed in No. 50, Vol. 4, Scientific American, is now offered to the public as a most important desideratum for saw manufacturers and all who use saws, as they can gum the teeth with very little trouble.—Orders addressed to G. A. KIRTLAND, No. 205 South street, (p. p.), will meet prompt attention. 36 tf

THE AMERICAN UNION.—The most carefully written and best arranged Paper in the United States. This Popular Paper is supplied with Selected Stories Humorous Sketches, Tales of Travel; Romances, Sketches of Real Life, Biographies, Poetry Serious Sentimential, and Humorous; Gems from New Works, Local Matters, Reviews Agricultural Treasuries, Scientific Novelties, Anecdotes, Glimpses of the Law, Opinions, Correspondence, Foreign and Domestic News, Congressional and Legislative Intelligence, Accidents and Casualties, Financial Articles, Markets, Miscellaneous Editorial Articles, amusing sketches, facts and fancies, such as never before has been in one publication. As a General Family Paper it is unsurpassed for the variety and completeness of its contents, and for the great care that is taken, while it shall amuse, to instruct and elevate the mind to a sense of its natural dignity. For the old, it will be found stored with experience—for the young, it will possess a charm that will not contaminate or cloy the taste. Published weekly by R. B. FITTS & CO., 22 School Street, Boston, Mass. Terms—Two Dollars per aunum, payable in advance. 32 8*

THE YANKEE NATION.—An Independent Literary Journal, Containing Original Novelettes, Tales of Adventure, Stories, Flashes of Wit, Biography, Poetry; Historical, Humorous, and Scientific Sketches; Editorial Chit-Chat, and Literary Reviews; together with the News of the day, Miscellaneous Items, and Original Articles on almost every subject of interest to this "Universal Yankee Nation." The Yankee Nation is edited with great care; and the most popular and spirited writers are engaged to contribute to its columns. As a Miscellaneous Weekly Newspaper, designed for general amusements and instructions, the Yankee Nation is unequalled by any paper in the country, and its contents cannot fail to be appreciated by every reader of taste.

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FOR SALE.—A second-hand Upright Steam Engine of six horse power, with Cylinder Boiler of 22 feet long, 24 inches diameter, together with fly-wheel and shaft, pump, furnace, and bars, complete.—This engine is one of Burden's make: has been used in all about four months, and is in capital order. The engine will occupy about 3 feet square, fly-wheel weighs about 550 lbs., and will be sold for the low sum of $550, delivered on ship board in good order. A draft for the above amount may be sent to

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JONATHAN TAYLOR, Machinist, Montgomery, Alabama, begs leave to inform inventors and the public in general, that he is prepared to make patterns and models to order. He is also desirous of being appointed agent for the disposal of all kinds of patent machinery. Office on Commerce street, two doors from the Exchange Hotel. All letters must be post-paid. 32 10*

SASH AND BLIND MACHINE—Patented by Jesse Leavens, of Springfield, Mass., is the best Sash and Blind Machine now in use. The Machine cost $300 at the shop where they are made, near Springfield—extra charge for the right of using. The machine does all to a Window Sash and Blind except putting them together. Orders from abroad will be promptly attended to, by addressing JESSE LEAVENS, Palmer Depot, Mass. 22 20t*

TO SOUTHERN MANUFACTURERS and Sugar Planters.—The advertiser a practical machinist and engineer, at present employed as chief engineer of one of the largest manufacturing companies in New England, is desirous of locating South. Address M., Engineer, Lowell Mass. 35 6*

TO THE THINKERS OF NEW YORK. KNOX is desirous that every rational man in want of a hat, should, for a moment, think before deciding where they shall supply that want. KNOX thinks that 128 Fulton st, is just the spot. 38 8*

ONE HORSE STEAM ENGINE.—Attached to Bentley's Patent Boiler, with pump, &c., all complete, for sale; it is set up without brickwork and occupies only three feet of floor room, price $200. Apply, post-paid, to S. C. HILLS, machinery agent, 12 Platt st. 38 4

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Scientific Museum.

Cleanliness in Working in Painting, &c.

The principal end aimed at by the Painter, Varnisher, or Gilder, and especially by the last two, is to beautify; and, without the strictest cleanliness, it is obvious this end can never be answered.

Every surface to which colour, varnish, or gilding is to be applied, should first be thoroughly cleaned; it should be rubbed, brushed, and even washed, if necessary; in the last case, however, it must be well dried afterwards.

When any surface which is to be varnished or painted has been previously varnished, and is found to be encrusted with dust or dirt, soap and water must be applied gently with a sponge, and great care taken every time after the sponge has been rubbed over the varnish to rinse it in clean water, and to squeeze it thoroughly out before it be again dipped into the soap and water.

In grinding colors, after you have ground as much of any one sort as you want, before you proceed to place any other kind upon the stone, let it be perfectly cleaned from the former colour, by first rubbing it with a cloth and fine dry ashes or sand, and afterwards with a little spirit of turpentine; then let it be well wiped with a rag, or with leather shavings.

But of all things in which cleanliness is essental, brushes and pencils are, perhaps, the most to be considered. With regard to the painter, where the very greatest nicety is required, a separate brush or pencil should be assigned to each colour, wiped when the work is done, and preserved by covering it with water. With artists, this is an invariable rule, but the occupations of the mechanical painter are hardly ever of such extreme delicacy as to require him to adopt it. In general, it is sufficient for him to carefully wash out every brush or pencil, after he has done with it, or before he employs it for any other colour than that with which he has been previously using it. This washing out should be first in the oil with which the colour has been ground or mixed (but neat linseed oil, or oil of turpentine, will always sufficiently answer for general purposes,) and afterwards in warm soapsuds. Brushes that have been used for varnishing may, on an emergency, be tolerably washed out with boiling water and yellow soap only. It is, however, much better to wash them well first with spirit of wine, if the varnish has been compounded with spirits; or with oil of turpentine, if it has been prepared with any description of oil; and, in either case, to clean them thoroughly with warm soap and water. The spirits used for washing varnish brushes are not thereby rendered unfit for use in preparing varnishes for common purposes. Remember, if either oil or colour be once allowed to dry in a brush or pencil, it is spoiled for ever. For coloured varnishes, kept in small quantities, a brush may be appropriated to each exclusively, and left in the bottle; but in this case the cork should be perforated so as to fit the handle, and the points of the hairs should dip into the varnish; the brush will then be always ready for use. A common mustard bottle will in general answer the purpose.

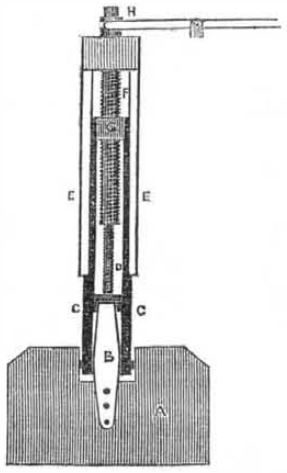
Sulphuric Acid and Bone Dust for Farmers.

It has been found that bones, in a heap with moistened ashes or sand ferment so intensely, as soon entirely to lose their structure and form. In this state they have acquired greatly more power as a manure. In one case 17 bushels of bones yielded a crop of 13¼ tons of turnips per acre, while the same crop was obtained from half the quantity of bones that heated in sand. In another case 14½ tons of turnips following the application of 25½ bushels of bones, while 12¾ bushels heated in sand yielded a crop of upwards of 17 tons per acre. In the former cases 4½ bushels of "sulphated" bones produced 14½ tons of roots, and in the latter 7½ bushels of "sulphated" bones produced a crop of 14½ tons. The explanation is this. In the course of it, let it be assumed that the value of the bones, as a manure, is mainly due to the phosphorus with which they furnish the plant. The chief constituent of bone dust is phosphate of lime, a compound of phosphoric acid and lime, which is insoluble in pure water, and which, therefore, if rain water, were pure water, would be useless as a manure. Lime will unite with two different proportions of phosphoric acid; and though as phosphate of lime it is insoluble, as phosphate (that is, united with a double quantity of phosphoric acid,) it is very easily soluble in water. And the advantages of adding sulphuric acid to bones is simply this—that it converts the insoluble phosphate which they contain into the soluble biphosphate. From one portion of the phosphate of lime it detaches the phosphoric acid, and taking its place, unites with the lime thus isolated, forming gypsum, while the phosporic acid which it detached combines with another portion of phosphate forming a biphosphate. Bone earth thus treated, therefore, contains phosphorus in a soluble form, and the turnip plant has an abundance presented to it by every shower which penetrates the soil in which the manure has been deposited.

History of Propellers and Steam Navigation.

[Continued from page 296.]

Fig. 58.



This is a leisure-hour invention of a merchant of this city, whose name we do not at present mention. It originated in the year 1839, but has never been published before, or put into use, except with a boat only four feet long, with steam power, piston stroke 1 5-8 inches, and paddle stroke 6½ inches. This boat was made in 1841, and on this small scale the experiment showed but a very slight slip of the bucket when two paddles on each side of the boat were used—one on each side always propelling, alternately. And when but one paddle on each side was used, it was found that the boat went one-third further than the buckets travelled. The paddles work singly in perfectly undisturbed water, and the motion of the boat was steadily onward without jarring.

Fig. 59.

A is the blade; it is secured to a bar, B, which has an axis passing through it, to secure it in the slides, C C. These slides are secured in grooves in the frame, E E, to slide in them. D is a sliding lever, with a butt on its lower end, against which the bar, B, rests, to retain the blade vertical when it is acting on the water when drawn backwards, and to allow the blade, when pushed forwards, to lie horizontally by the resistance of the water, and present only its back edge to it, thereby offering little resistance to its passage. G is a large nut secured to the slides, C C, and F is a fixed tube, with a thread on its outside, and it has a nut, H, on its head. By turning this head like a nut, the nut, G, will be moved up or down, thereby elevating or lowering the slides, C C to increase or lessen the dip of the blade. The lever handle at the top is for weighing on it and drawing up the arm, D, through the tube, F, at any moment, so as to let the bar, B, come on the other side of the butt, and make the blade to act in the contrary direction for backing. A number of blades of this kind may be attached to a reciprocating arm on the side of the vessel, direct to the piston rod of a horizontal engine, to employ the direct action of the piston without any crank at all, thus making the connection very simple. A long lever frame like fig. 59 may be secured on the end of the piston rod, so as to give a long sweep of the blades with a short stroke of the piston.

The paddles have a reciprocating rectilineal motion on the sides, and under the guards of the boat. The buckets, which may be flanged or not, are strongly braced, and are very easily and quickly reversed at the will of the pilot, without reference to the engineer. It is never necessary to reverse the engine. When the buckets of only one side of the boat are reversed, the boat turns round quickly without any use of the rudder. All the machinery is below deck.

The inventor thinks that his plan gives abundant bucket surface, and that the power necessary to propel these paddles is less than what is required for paddle-wheels, and that a very great speed may be thus obtained for boats at a comparatively small expense. The heavy expenses attending experiments on a large scale, and a want of proper time for such purposes, and not any want of belief in its utility, has prevented him from bringing the plan into use. He now opens it to the world, and any parties who may be disposed to give it a further trial can obtain his assent. The small boat is still in good working condition.

Black Egyptian Ibis

One of these rare birds, says the Boston Post was shot at Middletown, on the Connecticut, May 9th. It was a male in full plumage; stood eighteen inches high, and measured twenty-eight inches in length. It has been carefully preserved, and is now in the cabinet of Dr. J. Barrett. A similar bird was shot at Fresh Pond, Cambridge, on the 8th. It is highly probable that these birds belong to one and the same flock, and were driven so far south by the late storms, and by the abundance of snow in the high northern latitudes. The one killed at Middletown, was observed to be very lean. The *Ibis fascinella* is rarely seen in the United States, and is the first that has come under our observation. It is supposed to have left the valley of the Nile—where they are abundant—in or about March last. They migrate to Siberia in the breeding season, and return to Egypt in October. So that this bird, with his companions, may have been over Behring Straits to this continent, and by the inclemency and late melting of the northern streams, compelled to move to the south, and in following the Connecticut, may have supposed himself again on the Nile! The person who shot the bird remarked his "tameness."

The gentle manners, and want of caution, so conspicious in this bird, would entirely unfit it for residence in New England, where there is such a murderous prospensity to shoot the feathered race.

Acetate of Lead in Sugar.

The British Government has appointed Dr. Thompson, of Glasgow, Prof. Graham of University College, and Prof. Hoffman of the London College of Chemistry, as Commissioners to examine and report on the following questions:—1st. Is the use of acetate of lead in the refining of sugar likely to be detrimental to the public health. 2nd, Can the process be so followed that all the lead may, with absolute certainty be removed.

This commission is highly honorable to the British Government. As sugar has become an article of such universal use, its purity from poison is of the utmost importance to the whole civilized world. The eminent scientific gentlemen of the Commission, is a surety that the work will be well done and faithfully reported on. Dr. Thompson is held to be one of the first analytic chemists in the world, and is esteemed, where both are well known, far superior to Ure, for all the flings which the latter throws upon him in his Dictionary of Chemistry.

To Prepare the Hypo-Sulphite of Lime for the Refining of Sugar.

Boil together an excess of lime and sulphur with water in any convenient vessel until the mixture assumes a deep red color, and then allow it to settle for some time. The clear solution contains a mixture of hypo-sulphite of lime, and other sulphurets of calcium. To this clear solution sulphurous acid gas (smoke of sulphur) is to be added until the red color disappears, and no further deposit will take place, when considerable sulphuric is added both in a cold state. The solution is then filtered and the clear forms the hypo-sulphite of lime, and it is used for defecating saccharine matters. When this solution is used it is mixed with eight parts of water.

The Trade of Great Britain.

The export trade of Great Britain has greatly decreased during the last quarter, in amount, but has increased in value—the net increase being £279,910 ($1,399,550, nearly.) There has been a great decrease in the export of cotton goods, but in fine goods of mixed fabrics, the increase has been evident. The linen trade is the most profitable. There was an increase of exports for the last quarter of 20 per cent. The woolen trade of England and the linen trade of Ireland appear to be well sustained at the present time, but the cotton trade is in a poor condition.

To Prevent Bags from being Destroyed by Insects.

It has been found that bags, steeped in a solution of nitre, will effectually keep off the weavil, and other destructive insects, during the longest voyages.

LITERARY NOTICES.

Mothers of the Wise and Good—By Jabez Burns, D. D., published by Gould, Kendall & Lincoln, Boston, for sale by L. Colby, No. 122 Nassau st., New York. As the title indicates, this work is entirely devoted to the record of numerous practical examples of the influence of mothers over the minds of their offspring, showing the important province occupied by them in the formation of their characters. The work is pre-eminently adapted as a guide to strengthen mothers in the discharge of the onorous duties devolving upon them, and should be found in every family.

The second edition of the "Annual of Scientific Discovery," published by Gould, Kendall & Lincoln, is now ready. The sale of this work has been very large, which is an evidence of its goodness. Persons remitting $1 to us can have a copy sent by mail to any part of the country.

"The Two Worlds"—A splendid weekly journal of literature and art under the able editorial conduct of Messrs. Bailey & Wallace, seems to be rapidly rising into popular favor. We have perused each number with much pleasure, and can congratulate our city, that such a refined journal is likely to meet with deserved success. Terms, $2 per annum, Lockwood & Co., publishers.

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